Ma[illegible]-7 1987 Vol 6 No 17 60p

POPULAR Computing WEEKLY

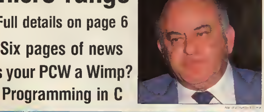
Clone wars: Atari UK launches second PC micro range

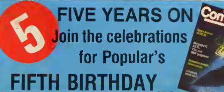
Full details on page 6

Six pages of news

Is your PCW a Wimp?

Programming in C





"BREATHTAKING"

A dazzling, supersmooth, super fast space combat game featuring unbelievable full colour screens and pulse racing action like you've never experienced before!

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May 1–7

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Top: Atari's entry level PC, see News Desk. Above: Wordstar Professional 4. Below: Arkanoid by Imagine, Popular's First Hall of Fame Member



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ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted. We cannot guarantee to return your programs – so please do not send your only copy. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Popular Computing Weekly. Tel: 01-437 4343.

True amateurs

I noted your comments regarding the tape magazine *Shake* in the Spectrum supplement March 20 and also the comments by *Shake* s editor Roger Foster (Letters April 3)

It would seem that the amateur bands referred to do in fact play for financial consideration and therefore it would appear they are not entitled to the status of amateur which implies they are doing it for love

Due to the misuse of the word amateur many people now confuse it with novice whereas to people who understand its correct meaning amateur has far higher status than professional (ie golf rugby etc)

Ron James
Preston

IPSO factors

As your magazine is probably the first to show any interest in publishing programs written for the world s most popular computer the Psion Organiser (*are you sure about this? Ed*) I am sure that at least some of your readers will be pleased to know that there is now an independent Psion Organiser user group IPSO Anyone requiring further information including a membership application should send a SAE to IPSO 130 Stapleford Lane Beeston Nottingham NG9 6GB

Mike O Regan
IPSO Group Organiser

Not dead yet

I am writing to inform you of a Dragon user group which has been supporting the Dragon for over two years

It is the NDUG (National Association of Dragon Users) [sic] and was set up in order to counteract claims that the Dragon is 'dead

Subscription charges are just £8 (£9 overseas) for which a monthly newsletter and help in all aspects of Dragon computing is offered

Further information can be obtained from the chairman Paul Grade 6 Navarino Road Worthing Sussex

S Jones
Harlow Essex

The French QL section

As you are one of the few magazines still supporting the Sinclair QL, and as you do have a wide readership also in France I would like you to mention the birth of a QL users club in France It is called QL Contact France and can be contacted by any interested person at the following address QL Contact France 36–40 Rue Stéphenson 75018 Paris (France)

Wolfgang Lenerz
Paris

Life north of Watford

I intend to take up your offer of 30% off a Spectrum teletext adaptor, even though I have no chance of being one of the lucky 150 The reason is that I live north of Watford!

Seeing that *Popular* can be purchased in London on Thursday and presuming the teletext units are sold on a first come first served basis then all 150 units will go to people in the London area

I hope your future offers and competitions will be fair to the whole of the country

Michael Scott
Preston

While the Volex offer proved particularly popular, and sold out quickly, many of the 150 went to applicants outside London

A pirate or a cheat?

The viability of software companies can only be good for the users and with suitable incentives programmers alike Therefore they should be adequately protected by law against being ripped off by the back room bootleggers By the same token the user should be protected against being ripped off by companies who offer fourth rate programs at top quality prices

It becomes easy to understand why many users seek to make themselves an illicit copy now and then For many others, hacking is all part of the fun It s a pity that so often more effort has been put into the protection than the game itself!

For me the worst kind of pirate is the cheat who copies a listing from a book and submits it to a magazine as his own At least other pirates do it for financial gain (although that does not excuse it!) but the cheat just does it for the undeserved glory

A prime example is a Spectrum Mortgage Calculator I copied from a magazine last year for future use A typing error produced garbage and I initially assumed the formula to be faulty and seeking an alternative found the identical program in an MSX book (allowing for the trivial changes in dialect) absolutely verbatim

Book listings usually have little or no commercial value but I ve often been inspired to alter the odd utility etc to improve user-friendliness or the display and sometimes shorten by more efficient use of the Basic but how different must it be before I can call it 'mine ?

Then again how different can one make it as efficient Basic is still Basic formula is still formula and the operating system (which itself is copyright) is unchangeable from the keyboard

George W Payne
Watford

Figuring it all out

As George Payne says (Letters April 3), Sinclair set a standard in computing but it had nothing to do with 8-bits and the associated restriction 256 Try the following benchmarks The first is a test for recursion and the second evaluates string handling

No stopwatch required – just note the final figure

```
Bm A  10 A = -1
      20 A = A + 1
      30 PRINT AT 1 1  A
      40 GOSUB 20
Bm B  10 B$ = ""
      20 B$ = B$ + " "
      30 PRINT AT 1 1  LEN B$
      40 GOTO 20
```

Some results

	RAM	Bm A	Bm B
Spectrum	48K	13802	13810
QL	128K	11010	32768
ZX 81	1K	353	245
CPC 464	64K	83	255
BBC B	32K	14	255

A more complete list would be headed by the American super computers – the Mac with its byte wise efficiency and the Amiga with its segmented efficiency I d be interested in the figures and perhaps G Payne R W Hogarty and the MSX chap could help complete the picture

Geoffrey Wearmouth
London N17

Hats off to Epson

I recently bought an Epson RX printer cheaply at an auction The penalty for the price though was the lack of any leads or documentation and as the RX range has been superseded by more recent Epson developments I was having great trouble obtaining certain details about the printer

Desperate for knowledge I wrote to Epson enquiring about the availability and cost of the manual Several days later through the post came the relevant manual detailing all the information I required As a result the printer is up and printing perfectly

I would like then through your pages to express my grateful thanks to Epson for its great service and help

James Barrie
Northampton

The best of both worlds

On the Letters front Mr Snelson of Stockport (April 10) is a confused rather than disenchanted user I feel who wants the best of both 8-bit and 16-bit worlds

Of course if one doesn t mind using cassette based software on an 8-bit computer, it is nice to be able to buy simple programs for £1 99 each

But discs particularly the technically superior $3\frac{1}{2}$ inch discs are about ten times as expensive as cassettes in both blank and pre-recorded forms

So my advice is to shop around for £25 ST games and also to consider budget labels like Tynesoft and shortly Mastertronic

To accuse Atari of muddled marketing is quite unfair as it also sells 8-bit cassette-based models

However, Mr Snelsdon chose to buy Atari s Motorola MC68000 based offering which has both business and games versions of varying random access memory

The 1040ST is a cheap but sound alternative to the much-acclaimed Apple Macintosh

And Atari's forthcoming Mega STs are only slightly behind the new more powerful additions to the Macintosh range. And ST software has shown remarkable progress to date.

Having said all that, there seems no doubt that Mr Snelsdon was cruelly deceived about IBM compatibility without an additional hardware emulator and Robtek's software emulator cannot yet claim 100% compatibility.

Michael Kingston
Bristol

Three questions

I have recently purchased an Amiga A1000 and 1081 monitor. However, I did not receive a cable with which I can connect my Commodore 128 to the 1081 monitor in order to obtain 80 column mode. Could you please tell me where I can obtain one of these leads and the approximate cost of such an item?

Also, could you please urge Beyond to release an Amiga version of its excellent *Star Trek* game?

Lastly, I have two friends called Jose Costa Correa and Jason Shattu who are at present programming marketable standard games. I would like to ask on their behalf how one could get a game released and distributed. Both are young and could do with advice on this matter.

D W Norman
London W4

Using your Commodore 128 with an Amiga monitor is not a straightforward operation, since the C128 has an RGBI output, while the 1081's input is plain RGB. You can obtain 80 column mode on the C128 with a standard monochrome monitor. See Letters, April 10 for previous correspondence on this issue.

Beyond tells us that an Amiga version of *Star Trek* is planned, "possibly before the end of the year". While we would like to be able to take the credit for "urging" them to do it, they actually thought of the idea themselves.

Lastly, there isn't space here to detail all the steps your programmer friends could and should take, but *Popular*, December 18, 1986, ran a full length feature on how to get your programs published commercially. Back numbers, if you don't have the issue, are available from Annmarie O'Dwyer on 01-437 4343.

Hold it! We've just brought out another new machine!

Frustrated by Amiga

I am rarely inclined to write to magazines but feel on this occasion I must write and express my frustration at the position regarding the Commodore Amiga 1000.

The advertising literature describes this as a fast business system with a range of high quality software, but when I wished to upgrade my Commodore 64 system to the Amiga I tried to obtain a payroll package for it, but to no avail. I then tried to obtain a suitable accounting package, but it seems one can only obtain an American package in dollars.

I know that the 68000 chip is new to programmers, but the Atari STs have two payroll packages available and numerous account packages.

The Amiga 1000 is not really new in terms of computer time scales, as the fact that the Amiga 500 and 2000 are ready to come on the market prove. So why is it so short on software? Commodore insists that it will continue to support it, but will it ever be mentioned once the 500 and 2000 arrive on the scene? I once thought of upgrading to the 128D, but this hardly gets a mention now.

Your columnist W E Page complains about being unable to get hands on experience of computers and software, and I think this is a very big stumbling block to the business user coming into computerised accounts for the first time. Even if computer sales staff do understand the software they are selling, they are reluctant to break open a new package just for demonstration purposes, so one is expected to take in on trust, especially if they have to order it for you.

The Inland Revenue has just issued a leaflet encouraging small businesses to put their payroll on computer now that they are so cheap. Judging by the amount of advice that is available to anyone seeking one of the cheaper systems, many business users will end up confused and out of pocket, and will face increased bills from their accountants when their accounts have to be sorted out.

The Amiga 1000 could be an excellent business system, as it includes the cost of a colour monitor, so come on Commodore, how do I get a payroll and accounts package for it?

S Cutter
Birmingham

Commodore tell us that there are two payroll and accounting packages available for the Amiga: *Financial Cookbook*, which is around £45, and *MI Amiga Ledger* at about £60. Both can be obtained from either Precision Software (01-330 7166) or Silica Shop (01-309 6300).

We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

Castling to safety

The chess tournament is back after its short Easter break. We're with Game One this week and the readers playing black have moved their awkward queen to d5. This finally allows *Colossus*'s king to castle to relative safety.

Containing the attack

Black now has many ways of containing this attack. What would you choose? Send your suggested Readers move to either Inter-Mediates (*Popular Chess*), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed) or *Popular Chess*, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp).

Please note that Freepost is slower than paid for mail: entries must reach either address by Wednesday May 6.

The move which gets the most votes will be entered into the game.

Prizes

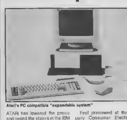
A British Museum reproduction Arran chess set will go to the person suggesting the most accepted moves at the end of the game. Five copies of *Colossus Chess 4* will go to the most consistent entrants.

Game One

The moves so far

1	Pe2-e4	Pc7-c5
2	Ng1-f3	Nb8-c6
3	Bf1-c4	Ng8-f6
4	Nf3-g5	Pd7-d5
5	Pe4xd5	Nc6-a5
6	Bc4-b5+	Pc7-c6
7	Pd5xc6	Pb7xc6
8	Bb5-e2	Ph7-h6
9	Ng5-f3	Pe5-e4
10	Nf3-e5	Bf8-d6
11	Pd2-d4	Pe4-d3 (en passant)
12	Ne5xd3	Qd8-c7
13	Nb1-c3	Ke8-g8 o-o
14	Pf2-f4	Qc7-b6
15	Nc3-a4	Qb6-d4
16	Pc2-c3	Qd4-d5
17	Ke1-g1 (o-o)	?

Atari's expandable PC system heats up cheap clone wars



Atari's PC compatible "expandable system"

ATARI has lowered the prices and raised the stakes in the IBM PC clone wars with the UK launch of its PC compatible machine

And to maintain its prolific reputation it launched yet another new machine at the higher end of the PC market

First previewed at the January Consumer Electronics Show in the US the low-end machine is now dubbed the entry level system

Everyone knew the specification everyone knew the machine was going to be cheap but until the opening of the Atari Show last Friday no one knew just how cheap

For £399 95 including VAT Atari is offering a 512K single disc micro which features a built in graphics card that supports EGA CGA and Hercules display standards

This display flexibility is what gives the Atari PC the edge over Amstrad s PC1512 And since the Atari machine will include a monochrome monitor for an extra £100 it is also some £15 cheaper

The Atari PC uses an Intel 8088 processor switchable between the standard speeds of 4 77 and 8mHz Memory is expandable to 640K there is room for a second internal floppy disc drive and parallel interfaces are standard

The more sophisticated model called the expandable system is physically larger and houses five IPM standard expansion slots for plug in cards

Variations on the theme include a single floppy or twin floppy models or a single floppy with built in 20Mb hard disc

Prices are £599 95 for a twin drive model and monochrome monitor and £999 95 for the hard disc version VAT is included in all prices

The PCs brought to five the total number of Atari hardware systems launched at the show There were also two models of the Mega STs the new 65XE video games system and the price busting laser printer

The printer will arrive in June and Atari is not putting a price on it until then presumably in the hope that it can bring down the price still further Look for a sub-£1 000 tag

The entry level PC will go on sale in June with the expandable systems following in the autumn

For a full report on the Atari User show see page 9

SBC ADDS NEW PCs TO ITS RANGE

THREE DAYS BEFORE Atari s announcement Spectrum Group declared that it has increased its involvement in the fast-growing PC clone market with a new range of compatibles to add to the Bondwell – and chief Mike Stern had this message for the industry "We re going to take on you know who with a vengeance He added We know how too '

The new SBC (Spectrum Business Computers) range features seven machines all designed to compete with other compatibles but primarily aimed at the Amstrad PC1512

The launch of the new machines is partly seen as an attempt to help Spectrum dealers compete with the successful relationships formed between Amstrad and retailers such as Dixons But Stern would not be drawn on whether he hoped to get SBC machines stocked by the major high street retailers

The entry level XT-compatible FD comes with twin floppy disc drives a 5 5 or 8Mhz Neo V40 microprocessor 640K Ram 4 expansion slots 84 key XT-compatible keyboard MS DOS 3 2 and GW BASIC 3 2 maths coprocessor socket serial and parallel ports 135W power supply rating and a monochrome graphics and CGA colour changeover switch It will cost £704 inclusive

The Mistral range is based on a 80286 board made by British Aerospace at Filton using surface-mounted technology This is one of the main features of IBM s recently launched Personal System/2

The machine runs at 6 8 or 12Mbz has 1Mb Ram and a 30Mb hard disc as standard and a potential configuration with up to 4Mb Ram and 190Mb hard disc units Prices which include MS DOS 3 2 GW Basic 3 2 VAT and a full 12 month on site maintenance contract are £2 116 (mono) £2 351 (CGA) and £2 587 (EGA)

The £704 machine is also supplied with a 12 inch green monitor the £940 FDC has a medium resolution 14 inch colour monitor

There are two hard disc versions The monochrome HD20 £1 175 and colour HD20C £1 410 have one 360K floppy drive and a 20Mb hard disc



The SBC FD – £704 with a green screen monitor

Commodore president resigns after board row

THE president and chief executive of Commodore International Tom Rattigan has resigned his post and subsequently started legal action against the company.

This action move comes at the same time as the board of directors has elected not only a new chief executive but a whole new US management team.

Commodore's long time chairman Irving Gould is the new chief executive of Commodore International. "I look forward to ensuring strong leadership at all significant levels of management particularly to strengthen the sales function and establish expanded distribution in the US," he said.

A Commodore spokeswoman was unable to offer any further information on the reasons for Rattigan's departure but she emphasised the importance of Gould's remarks.

Rattigan claims that the company has breached his contract of employment by materially diminishing his duties and responsibilities.

But it looks very likely that the board – anxious to install the new team – made Rattigan an offer he couldn't refuse.

Rattigan started legal action

Other changes include the appointment of Alfred Duncan as General Manager of US operations and Richard McIntyre as General Sales Manager for US operations.

The US management moves are the latest surprise from Commodore. Last month the company's UK chief Chris Kaday left in mysterious circumstances (see *Popular Computing Weekly* 10–16 April).

NEWS DESK
Atari show report – p9
'Trade wars' – the micro threat – p10
Future of the PCW 8512 – p13

SOFTWARE HOTLINES

Regular readers will recall that **Palace's** latest game *Barbarian* has been promoted in the computer press (though not this particular magazine) with a piccy of Page 3 cutie Maria Whittaker kneeling before a hunky viking type. Tacky indeed but if your sexism nodes withered at the thought of that then don't go anywhere near the Palace Kings Cross programming offices.

They're more like a shrine to the mammary gland with blank wallspace at a high premium.

Nevertheless the game is set to be one of the best combat games around.

It's all cut and thrust with the action under elegant joystick control. Animation is superb and those clever Palace people have devised a method that really does make the intelligent computer opponent intelligent.

Add to this lot the particularly gory graphics (watch that blood spurt from the neck during the decapitation ... which doesn't come out too well in the black and white below) makes Barbarian a sure fire winner.

CRL seems to be continuing its equally unhealthy dalliance with the macabre.

After *Dracula (15)* it has now commissioned St Brides to write a Jack the Ripper adventure using Gilsoft's *PAW*. CRL claims it will be a serious portrayal of the grimmy deaths but the Dear Ladies of St Brides will be sure to spring the odd (and I mean odd) surprise.

The other pic this week is a super highly exclusive preview shot of *Heroquest* – the *Swords & Sorcery* follow up from **PSS**.

This time the scene is set in a castle of an evil wizard and you have nine quests to perform starting with rescuing the captive princess (what else?) but ending with the slightly more ambitious blowing of the horn of fate in some hidden temple.

Heroquest certainly appears to be less of a hack than its predecessor with everything being there for a reason if only you can find out what.

The same system of menus and sub menus is used for selection of actions but the animated graphics have been cleaned up a bit.

Critics of *S&S* said it was a bit like wandering around a NCP multi storey monster bashing ... so far *Heroquest* looks like being an improvement on that.

Finally a correction. A few issues back we suggested that *Laurel and Hardy* was called *Big & Little Reindeer* in Scandinavia. Wrong. World Wide Software of Denmark dropped us a line to say they are in fact called Gog & Gokke and to drop them a line if we need any further language instruction. How's your Anglo Saxon lads?

John Cook





VIRGIN GAMES proudly presents NOW GAMES 4! No dedicated games player can afford to miss this bumper pack. There are 5 full priced hits on one cassette, each chart-topping game works out at a budget game price.

Leading the way is the incredible "DAN DARE – PILOT OF THE FUTURE" from Virgin. There's the hit game of everyone's favourite film 'BACK TO THE FUTURE" and a chance to crack systems with "HACKER", both from Activision. "MISSION OMEGA" from Mind Games requires strategic thinking against the clock and Jonah Barrington says "JONAH BARRINGTON'S SQUASH' is so realistic it may even help improve your game. This is a first for Amstrad owners as this has never been released before!

AVAILABLE FROM COMMODORE 64/128, SPECTRUM 48/128 AND AMSTRAD CPC computers, on cassette for £9.95

Now Games 4 is available from all good software retailers or directly from Virgin Games with this coupon.

You can get exceptional prices on other NOWS in this great series and the more you buy, the more you save!

NOW GAMES Spectrum 48/128 and Commodore 64/128 • Featuring **Lords of Midnight** (Beyond), **Strangeloop** and **Falcon Patrol II** ([illegible] Games), **Pyjamarama** (Mikro-Gen), **Arabian Nights** (Interceptor), **Brian Bloodaxe** (The Edge).

NOW GAMES 2 Spectrum 48/128 and Commodore 64/128 • Featuring **Airwolf** (Elite), **Chuckie Egg 2** (A'n'F), **Tir Na Nog** (Gargoyle), **Cauldron** (Palace Software), **World Cup** (Artic).

NOW GAMES 3 Spectrum 48/128, Commodore 64/128 and Amstrad CPC • Featuring **Nick Faldo Plays the Open** (Mind Games), **Sorcery** (Virgin Games), **Codename Mat II** and **View to a Kill** (Domark), **Everyone's a Wally** (Mikro-Gen).

Please tick the software you require. Send this coupon to VIRGIN GAMES LTD, [illegible] LONDON W11 [illegible]. Please make cheques and postal orders payable to VIRGIN GAMES LTD. [illegible]

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ADDRESS ____________________
____
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NOW GAMES 4 ONLY	£9.95	£9.95	£9.95
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ST PRODUCTS DOMINATE ATARI USER SHOW

ALTHOUGH Atan Corporation used the Atan User show held at the Novotel London W6 on April 24–26 to launch its entry level and business PC clones (see page 6), it was the potential of the ST range which was largely being exploited by other exhibitors You had to search quite hard for any sign of 800XLs or 130XEs

The show also saw the first public display of the Mega STs 2Mb and 4Mb capacity machines in the series These machines are aimed at specialist markets including desktop publishing and so Atari had its laser printer on show with the Mega STs For DTP software two companies Mirrorsoft and Soft Logik via Silica Shop were demonstrating packages

Mirrorsoft had the Postscript laser printer driver on show in tandem with *Fleet Street Publisher*, giving the professional software package a professional looking output

Fleet Street Publisher
Postscript printer Driver

Fleet Street Publisher
Postscript printer Driver

Examples of output using the Postscript driver with *FSP*

Soft Logik s *Publishing Partner* comes with a variety of printer drivers from 9 and 24 pin dot matrix printers to Postscript and HP laserjet printers

HB Marketing in addition to showing the Realizer digitiser pulled in the crowds with a weather satellite receiving system running on the ST With the machine connected to a receiving dish pictures from Meteostat can be displayed on the ST screen and then manipulated by the user

The company also showed a word processor Signum which is designed to cope with outputting all kinds of scientific formulas and notation as well as offering an extensive selection of fonts

On the more mainstream side of business software Precision showed *Superbase Personal* its new ST database Computer Concepts author of *Fast Basic* showed a word processor with DTP leanings *Calligrapher* and also *Back Pack* a desk accessories package on Rom cartridge Back Pack comprises a scientific calculator alarm clock diary notepad, address book and Ram disc facility

Windows from *Back Pack*

Integrated business packages also reared their heads with Execon (financial aids) and Migent s *Ability* a word processor spreadsheet database etc

Hisoft demonstrated further products in its language series including its new ST Basic compiler The demo versions being run included an amusing image of Jack Tramiel s head and shoulders rotated at fast speed around the screen We ll see how it matches up against Glentop s GFA Basic Compiler (also at the show) when it is launched in June

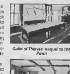
There was also a strong presence of music and graphics utilities Syndromic Music took over substantial floor space to run continual demonstrations of Midi musical applications from a number of companies including Dr T C Labs Hybrid Arts Steinberg and Passport Music specialist 2 bit systems also exhibited on the ground floor

On the graphics side Mirrorsoft had both *Art Director* and *Film Director* up and running while Electric Software showed *Easy Draw II* Electric also demonstrated an unusual 3D effect manipulator complete with special 3D glasses attached to the computer via the expansion port The company hopes to sell the product to design houses and schools and colleges

As so many 520STFMs are being sold for home use the games companies were out in force Rainbird s *Guild of Thieves* is Anita Sinclair s follow up to *The Pawn* and will be available in the next two weeks

Psygnosis creator of *Brattacas* was showing *Barbarian* and *Terrorpods* two arcade style games with cartoon style graphics

Microdeal one of the earliest software companies to begin supporting the ST had its full range on display including *Gold Runner* with its infectious soundtrack

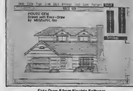


Guild of Thieves sequel to The Pawn



Robtek also publically launched its leisure label calling it Diamond Games Tynesoft also had demonstrations of the ST leisure range including the appealing *Mousetrap* Tynesoft s Microvalue series are all very realistically priced ranging from £12 £15

Many of the customary show bargains were to be found on the ground floor which was also where the 8 bit software created its niche Red Rat Software being among the houses to demonstrate XL games while Computer House showed a range of desk utilities in Rom for the XL/XES



Easy Draw II from Electric Software

Trade war threat: the implications for Europe

Whatever the outcome, the threat of a 'trade war' between the USA and Japan has a profound effect on the micro industry, or more specifically, supplies of semi-conductor chips John Brissenden reports

THIS week s visit to Washington by Japanese Prime Minister Yasuhiro Nakasone comes amid the worst US Japan trade disagreement since World War II

Although the United States and Japan appeared to be sorting out their difficulties at the time of writing Europe looks set to suffer as a result of the dispute whatever the outcome

On Good Friday President Reagan announced 100 per cent tariffs on a huge amount of Japanese imported goods including colour TVs microcomputers and power tools

Accusations

Before and since the announcement accusations have flown thick and fast between Washington and Tokyo

The dispute covers a wide range of goods from electric drills to cigarettes beef and oranges But at the heart is a fundamental battle between the two nations over semiconductors – or more exactly Dynamic Random Access Memory (D-Ram) chips

These are at the heart of every computer from an eight bit games machine to a main frame and are therefore traded in their millions

The United States has accused Japan of dumping that is selling chips at below cost price to manufacturers first in the United States itself then in third country markets – Malaysia Korea and so on

The current dispute is on the face of it at least over Japan s breach of an agreement reached in July last year with the US over fair market prices for chips

Under this agreement the Japanese agreed to keep to these prices which were set by the US Department of Commerce Selling chips below these prices would break US anti-dumping legislation

Not just the US

The agreement covered not just the US but also third country markets Finally the agreement was an attempt to open up the domestic Japanese semiconductor market to US firms

Baker openly uneasy about the action

No sooner was the agreement signed than the Americans accused the Japanese of breaking it by dumping chips in South east Asian third country markets

The accusations and counter claims by the Japanese have continued since then until President Reagan s Good Friday announcement of 100 per cent tariffs on $300 million (about £185 million) worth of Japanese imports

Before exploring the implications of the escalating trade dispute it is worth examining the strategic importance the United States places on its semiconductor industry

Apart from its economic importance the semiconductor industry has another perhaps more important role as far as the United States is concerned

These chips manufactured by major US firms such as Motorola and Texas Instruments are at the core of many key defence projects – chief among these is the Strategic Defense Initiative or Star Wars

The technology for SDI is based around Cray supercomputers which depend naturally on US semiconductors

Critical industry

C Fred Bergsten director of the Insitute for International Economics in Washington has said Practically everyone in the US agrees that semiconductors is a critical industry and that it would be dangerous both to the economy and to national security to lose it

"Before and since the announcement, accusations have flown thick and fast"

Bergsten has also written in an article in *Foreign Affairs* magazine

Can the world s largest debtor nation remain the world s leading power?

So at a time when the US is running a record trade deficit anyway when arms spending has shot up for a number of years at the expense of industrial investment and when its defence chiefs are sensitive about the possible collapse of US semiconductor manufacturers – for example Fairchild – it is easy to see the real reasons for the importance the American government is placing on its ongoing difficulties with Japan

Controversial

The tariffs announced before Easter then have divided opinion in the United States and Japan While many welcome the move most assume that the problems of the United States trade deficit with Japan won t go away because of this controversial but ultimately not very effective measure

And some American commentators notably Treasury Secretary James Baker are openly uneasy about the action which could easily escalate into worldwide protectionism

A *New York Times* leader column summed up Baker s fears thus

Japan responded with



Reagan announced 100% tariffs on Japanese imports

tighter controls on its producers let everyone hope that it does not retaliate. With economic activity already sluggish in both countries the last thing the world needs is for them to plunge into trade war. Just the announcement that Mr Reagen would resort to retaliation triggered turmoil in the financial markets they have not settled down since.

And Jack Tramiel of Atari pointed out last week that it wasn't a case of Japan's doors being closed to US imports anyway. Rather that the Japanese consumer simply prefers to buy Japanese.

> **"The implications could be serious for overall European markets in semi-conductor goods"**

Opinion is divided within Japan as well. Sony chairman Akio Morita was typically outspoken when he was reported as saying that Japanese resentment of US actions was based on

The feeling is that American criticisms do not arise from legitimate grievances but more from an increasing tendency to blame Japan for problems of America's own making.

The Ministry of International Trade and Industry (MITI) is the huge government department which deals with Japan's vast overseas trade in electrical goods and computers. MITI minister Hajime Tamura made clear that the official response would be to carry on negotiations and appeal to GATT (General Agreement on Tariffs and Trade), the United Nations body governing trade disputes.

But he has also claimed that the US tariffs would "cause severe damage" to the world's free trading system.

So for the moment at least the fight seems to be between Washington and Tokyo. Britain barely has a semiconductor industry to be damaged by dumping from anybody. But the implications could be serious for overall European markets in semiconductor goods.

In fact the EEC has up to now been far ahead of the United States in action against Japanese trade surpluses. All 12 members have taken action either collectively or individually over goods from photocopiers to semiconductors themselves.

Strength of the Yen

But a senior figure in the British microcomputer industry and a member of the board of the British Microcomputer Federation thinks that the strength of the yen against other currencies is a much stronger determinant of Japanese trading policy than simple aggressive selling.

> **"The Japanese are puzzled as to the strength of feeling"**

MITI minister Hajime Tamura "severe damage"

The current dispute is really a whole lot of to-do about not a lot he said.

Because of the strength of the yen the Japanese are in fact hard pushed to hold prices. The Japanese are puzzled as to the strength of feeling on the part of the Americans and Europeans.

He suggested that whatever happened the BMF for its part would look to represent all companies trading in computers whether they were based in the US Japan or anywhere else.

But it looks as though European consumers may come off worst once again thanks to being pig in the middle.

NEXT WEEK

The Sinclair QL

A chance for QL users to catch up on all the latest news and software for their machine.

Our eight-page supplement will be looking at alternative keyboards, the QL's graphics capabilities and they are utilised by products such as *ICE* from Eidersoft and

SPECIAL supplement

Rubicon's *Viewpoint CAD*, and this year's 'in' thing, desktop publishing

Fighting piracy

In the last of our features on computers and the law, we talk to the law – more specifically, Detective Inspector Austen of the computer crime unit attached to the *fraud squad* about his work

Programming in C

Kenn Garroch continues his sense on programming in C, with examples of how to write simple programs in the language.

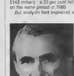
Compunet update

Graham Edkins brings you the latest developments from the Compunet database for Commodore users.

SLUMP IN PROFITS AT IBM LEVEL OUT

IBM's severe profits slump is showing signs of bottoming out. The computer giant's first quarter figures reveal a drop in profits of $232 million (about £142 million) a 23 per cent fall on the same period in 1986.

But analysts had expected a



Akers optimistic about the prospects for IBM

much more dramatic jump owing to a very bad fourth quarter in 1986. IBM's annual earnings for 1986 – $4.79 billion (£2.93 billion) were its worst for four years and it was the first time since the 1930s that the corporation suffered a drop in earnings in two consecutive years.

So commentators and industry analysts didn't expect IBM's cost cutting measures to show through until later in the year.

IBM chairman John Akers was understood to be optimistic.

He is reported as saying: "We have yet to fully benefit from our recent product announcements retirement incentives and other resource balancing measures. We remain optimistic about the prospects for both the industry and IBM."

These measures higher sales and a blitz of product launches centred around the Personal System/2 personal computers and the 9370 mini computers combined to boost IBM stock on Wall Street by $3.75 following the announcement.

End of the line for PCW8512?

AMSTRAD could soon be ending production of the PCW8512 the dual drive version of the low cost word processor cum computer.

It appears that sales of the PCW8512 have been dropping off quite sharply following last September's launch of the IBM compatible PC1512.

Amstrad views the PCW 8256 and 8512 as word processors and markets them accordingly – the future of the 8256 therefore looks assured.

Amstrad itself wouldn't comment one way or the other but there have been reports from dealers who have been told by Amstrad distribution representatives that they wouldn't have the 8512 machine much longer.

One Welsh dealer was reported by a trade paper recently as refuting Amstrad claims of poor sales for the 8512. Derek Jones of Wrexham Computer Centre claimed that the 8512 had been selling three times as much as the 8256 and hoped that Amstrad would chop the latter machine instead.

Amstrad has declared its intention to bring out a follow up machine to the PCWs this year (see *Popular Computing Weekly* November 20 1986). But the launch of the PC1512 has added weight to reports that Amstrad intends to streamline its product range in this area maybe with one machine solely designed for word processing.

Industry sources suggested last week that Amstrad is concentrating on getting the disc driven Spectrum Plus 3 absolutely right before making any move.

Wordstar for new IBMs

MICROPRO has announced versions of *WordStar Professional Release 4.0* and *WordStar 2000 Plus Release 2.0* for the IBM Personal System/2.

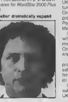
The new versions will support the IBM presentation manager and Microsoft Windows.

In addition Micropro claims that the Personal System/2 versions will run significantly faster. The company says that *WordStar 2000 Plus* runs 2.3 times faster on the new Model 60 than on the old PC XT.

"IBM has made a quantum price/performance leap and is launching the personal computer industry into its third wave of evolution," said Micropro MD John Speller. "This new hardware will dramatically expand the technological boundaries for software developers."

Prices for the new versions will be the same as other versions – £469 inclusive for *WordStar Professional v4.0* and £547 inclusive for *WordStar 2000 Plus v2.0*.

Speller dramatically expand



Major campaign for Origin

MICROPROSE has appointed Ray Evitts as product manager for Origin Systems.

The move follows the deal for UK and European manufacturing sales and marketing of Origin products which Microprose recently announced (see *Popular Computing Weekly* March 6).

It is understood that Evitts will shortly be responsible for a major campaign to promote Origin games such as *Autoduel* and *Moebius*.

"Although Origin and Microprose will be working side by side our software is very different. My job is to give Origin its own identity," said Evitts.

Ray Evitts was previously sales manager for Ocean Computers UK.

DIARY DATES

MAY

2–3 May
First Ideal Microcomputer Show
Kensington Exhibition Centre
Details: Software hardware peripherals for consumer users
Price £3 on door £2 in advance
Organiser: RAMCO International Exhibitions 01-906 3363

8–10 May
The Electron & BBC Micro User Show
New Horticultural Hall London
Details: Software hardware and peripherals for Acorn's micros
Price £3 adult £2 children £1 discount for advance booking
Organiser: Database Exhibitions
061 456 8835

JUNE

12–14 June
Commodore Show
Novotel Hammersmith
Details First public showing of A500 and A2000 Amigas
Price £3 adult £2 children
Organiser Database Exhibitions
061 456 2991

JULY

10–12 July
Amstrad Computer Show
Alexandra Palace Pavilion London
Details Displays and demonstrations of all latest hardware software and peripherals for Amstrad computers
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions
061 456 8835

Prices dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

HAPPY BIRTHDAY!

Popular has reached the grand old age of five – what better excuse for a bit of self-indulgence and a look back at half a decade's worth of events in the home computer industry?

Popular Computing Weekly has joined that exclusive club among micro magazines – we've reached our fifth birthday.

An even more exclusive elite is made up of those of you who can remember the first *Populars*, but for those who don't, we've reprinted overleaf our very first front cover and News Desk.

The Stone Age

Back in 1982 the computer industry was, as you can see from the reprint, very different. The Spectrum, which now seems to have been around since the dawn of time, was still only a trade name within Sinclair Research.

Clive, you will note, had not yet been knighted, and what's all this about a "mechanical keyboard with feel similar to a typewriter"? That, would you believe, was the original dead flesh keyboard we were talking about there.

Or maybe it wasn't so different. Commodore was talking about possible new machines (with the accent on possible – the Ultimax may have been exhibited, but it never hit the streets); the ZX Microfair was already an institution, and disc drives for Sinclair machines have been coming and going ever since – still in the news today with Amstrad's planned Spectrum Plus 3 version.

Popular, the first weekly mag on the market, was started primarily as a listings magazine – one of the features that has gone from strength to strength and is still around today.

The first *Populars* also included a *Peek and Poke* column, reviews, of course, and the puzzle – all sections with something akin to listed building status these days.

Fashion through the ages. *Popular's* covers undergoing metamorphosis. Amstrad's purchase of Sinclair's rights (top) was a major milestone in the industry

The Bronze Age

November 1982 – out with the colour covers in with the news. That week we announced to the world that Commodore had delayed the launch of its Commodore 64 micro, that Melbourne House had just tied up the rights to produce a game based on *The Hobbit* by J R R Tolkien (and four and half years on there are still people who don't know how to get out of the goblin's dungeon) and Atari had announced a new games machine, the 5200. The letters page was thick with complaints over the late deliveries of the 48K Spectrum ("it is now 16 weeks since my order was acknowledged" wailed Michael Hodgkins). *Plus ça change*.



The first cover with the news – November 1982

Also in November 1982 another stalwart feature saw the light of day as *Popular* published its first Ziggurat. In December we carried our first software charts, with Bug Byte's *Invaders* at number one.

The Iron Age

Into 1983 and 84 and *Popular* was growing bigger all the time, despite competition from two other weekly magazines, *Personal Computer News* and *Home Computing Weekly*.

The computer market was booming, although still dominated by Sinclair and the Spectrum on the hardware side. Sinclair Research was valued at £140 million and Clive became Sir Clive in the Queen's Birthday Honours.

Other popular machines were the Dragon and Commodore's 64 was much admired, if considered a little pricey at over £300.

The BBC Micro was going strong too, thanks to the BBC's micros in schools scheme and plenty of optimistic parents were buying them for the home as well.

Top software houses were Melbourne House with its best selling *Hobbit*, Psion whose titles were published by agreement by Sinclair Research, Quicksilva, Bug Byte and Imagine. The last named particularly had carved out an image for themselves of immense wealth to be gained by young programmers – the legendary (and largely mythical) case of Eugene Evans and his £35,000 salary and company car he couldn't drive being reported in national newspapers.

The Dark Ages

Things changed dramatically in 1984 – and not only because *Popular* moved to glossier paper.

The year started on a high note with the launch of Sinclair's Quantum Leap, the QL. A business machine for only £400 had captured the imagination of the press, public and software companies alike, but things turned very sour with the long, long delivery delays and the first models being delivered with half the innards on an Eprom sticking out of the back.

Popular kept a record of the time taken to deliver our own QL – it finally turned up after 16 weeks.

We also brought the first news of Amstrad's entry into the computing field with the CPC464. Not that we had any idea of Amstrad's impending domination.

Then came the crashes: Dragon Data, Rabbit Software and, most spectacularly of all, Imagine.

The sceptics came out in force when a new company called Mastertronic announced it was going to do the unthinkable – sell computer games for £1.99. "They'll never make any money." "The programmers certainly won't make any money." "All the games must be rubbish."

And so on. Meanwhile Mastertronics got on with the job and sold zillions.

The Renaissance

Colour came back to the front cover of *Popular* at the beginning of 1985 and has never left it since.

Things sorted themselves out (sometimes rather brutally) in 1985 and 86. Acorn led the way by having to be rescued twice by Italian manufacturer Olivetti and then mighty Sinclair turned gratefully to Robert Maxwell's offer before the newspaper publisher pulled out.

Only Commodore, with its C64 going great guns thanks to more sensible pricing and the continued import of high quality games from the US, seemed to be unscathed, but even it had its fair share of cash flow problems and reported losses running into millions in late 1985.

From today's point of view, Jack Tramiel's takeover of Atari and the company's subsequent rebirth with the ST machines was probably the most significant move and led the way for today's growth of 16-bit machines into the home.

Now the distinction between the home and small business market is more blurred than ever. PC clones, PCWs, STs, Amigas, all used happily in either capacity.

We'll carry on reporting developments and innovations as they happen – hopefully before they happen. When we come to the end of the next five years, I'll bet you anything you like the industry will be virtually unrecognisable from the market today.

Datelines

Computer milestones as reported by *Popular Computing Weekly*

1982

April 23 First edition of *Popular* published. The ZX82, or Sinclair Spectrum, announced.
May 27 The NewBrain micro launched by Grundy Business Systems.
July 8 Mettoy launches the Dragon 32 computer.
July 22 Tangerine announces the Oric 1 micro.
August 19 Clive Sinclair offers a £10 voucher to those still waiting for their Spectrum to be delivered.
September 16 Computers announces the advent of the Lynx.
September 23 Prestel releases plans for a software downloading scheme, to be called Micronet 800.
November 11 Melbourne House gains rights to produce a computer game based on Tolkien's *Hobbit*.
December 16 The Sinclair Spectrum goes retail, sold over the counter at W H Smith.

1983

January 6 Sinclair announces that a version of the Spectrum will be sold by Timex in the US.
January 27 Sinclair sells 10 per cent of its equity to raise money for its electric car project. The £12.7 million realised means that Sinclair Research is valued at £135.9 million.
February 10 Mattel announces a new computer system – the Aquarius.
March 3 Micronet 800 officially launched.
March 17 Commodore plumps for Corby as the site for its new micro assembly plant. According to Commodore it will employ over 300 people and supply Commodore home computers to the whole of Europe.
April 7 Jeff Minter's GridRunner goes to number one in the US.
May 12 Memotech shows a new low cost micro at the London Computer Fair.
June 16 Clive Sinclair is knighted in the Queen's Birthday Honours List.
July 21 Sinclair claims its new Microdrive device will be ready in September.
August 11 New company Elan is set up to develop the Elan computer (watch this story – it runs and runs).
August 25 National newspaper *The Daily Mirror* unveils plans to publish software programs. Grundy, manufacturer of the NewBrain, goes into liquidation.
September 1 The long awaited Electron is finally launched.
September 22 Elan declares that its two micros, the Enterprise 64 and 128, will be in the shops by April 1984. Sir Clive unveils his flat screen TV.
October 20 Acorn joins the Unlisted Securities Market (USM).

continued on page 16 ▶



23 APRIL 1982 Vol.1 No.1
30p

Space Amaze on ZX 81

Six pages of ZX 81, VIC, and BBC programs

Cassettes tested
Micro music

and much, much more

Win a ZX 81 Printer

News

The ZX82 is near!

CLIVE SINCLAIR is on the brink of launching his new computer The machine will probably be sold under the trade name Spectrum , but for the moment is code named 'zx82' within Sinclair Research

The price of the ZX82 is expected to be about £170 — considerably higher than the ZX81 (£69 95) or the ZX80 (£99) But its features should prove well worth the money and will make it a serious contender for the Number 1 computer for home users

The ZX82 is a significant step forward from the ZX81 It will offer colour graphics and have a mechanical keyboard with feel', similar to a typewriter The touchpad keyboard of the ZX81 proved a cause for complaint for many users but the new design should put an end to these dissatisfactions

The memory of the ZX82 will be capable of expansion to 32K — seen by many users a necessary rather than merely desirable

Compatibility with earlier Sinclair machines has yet to be confirmed

Third ZX Microfair promises to be biggest yet, says organiser

The third ZX Microfair will be held at Westminster Central Hall on Friday April 30 and Saturday May 1

More than 70 suppliers of hardware and software for the Sinclair ZX computers have taken stands at the show according to the organiser, Mike Johnston

'We're having great difficulty in squeezing in everybody who wants to show their wares in said Johnston But we will be making more space available than at previous Micro fairs so visitors will be able to see a very wide range of offerings

About 40% of the exhibitors will be showing hardware products including a number of high quality RAM packs Storkrose will be demonstrating an I/O device which allows up to four cassettes and a printer to be attached to the ZX81, while Ab Pandall will show a mini keyboard to fit over the XZ81

Mike Johnson more space

Admission will be 60p for adults and 40p for children, and the exhibition will be open from 12 30 pm to 8 30 pm on the first day and from 10 00 am to 6 00 pm on the second

For those who wish to make absolutely sure that they will get in, advance tickets are available for the Friday price £1 for adults and 50p for children You can obtain these from Mike Johnston Organiser ZX Microfair 71 Park Lane, London N18 0HG

Johnston is also organising a ZX Microfair to be held in Manchester on Saturday May 29 and Sunday May 30 at the New Century Hall in Corporation Street

Times of opening are 10 00 am to 8 00 pm on the first day and 10 00 am to 5 00 pm on the second

Monolith plans a £200 disc driva for Sinclairs

At last you ll able to use disc memory with the ZX81 when Monolith launches a floppy disc unit for the Sinclair machine probably in June'

The units will cost about £200 each according to Monolith director Rod Hallett He believes they will prove attractive to hobbyists and small business users such as shopkeepers who could use the drives for applications like stock control and accounting

The drives are at present undergoing final tests, but Hallett is confident that they will be completely bug free by the time of the launch

We are already taking orders on a deposit basis but as yet we haven't decided whether to make the devices available through dealers said Hallett But because we re selling on fairly tight profit margins to keep the price down we're likely to plump for direct mail sales only

How Sinclair will react to the new machines is still unclear Sinclair does not intend to recommend any particular disc drive ' said a spokesman for the company We are interested in selling a drive under our own brand name, either making it ourselves or buying in from another supplier We've had a number of discussions about this with companies including Rodime but as yet have come to no decision about these

Commodore is having a baby

Rumours have been filtering through the press lately with regard to new machines coming out of the Commodore factories Lets take a look at the newest, and smallest, of these the Ultimax

Ultimax has a US selling price of $149 95, so we can expect a UK price of something like £99 Delivery dates are not quite so clear, some dealers are quoting midsummer, but from past experience we shouldn t expect any great quantities until somewhere nearer Christmas

Built-in memory will be 2K or 2 5K (no-one seems quite sure at the moment), with an additional 8K expansion cartridge becoming available at some point However, as only one cartridge can be plugged in at a time, and Basic comes on — you guessed it — a plug-in cartridge, memory expansion seems a lost cause

All this is still subject to change so things may be different when the machine appears in large quantities

See us at the Computer Fair

The first of the major home computer exhibitions this year is the Computer Fair, running at London's Earls Court on April 23-25

Popular Computing Weekly will be exhibiting at the fair on stands 309 and 410

The Computer Fair is an ambitious attempt by IPC, the large publishing company, to break into the market for home computer exhibitions To date this has been dominated by the Personal Computer World Show, held in the autumn

One of the key attractions of the Computer Fair is the ZX Village in which most of the companies supplying software and hardware add-ons for the ZX81 will be exhibiting

◀ continued from page 15

November 3 Texas Instruments withdraws from the home computer market
Jupiter Cantab, manufacturer of the Jupiter Ace, goes into receivership
November 17 Japanese plans for an MSX standard for micros are announced

1984

January 5 It is revealed that Amstrad Consumer Electronics is planning to enter the computer market with a machine with a built in monitor and cassette deck

Imagine set the style for sophisticated inlays – Arcade has one of its most successful series

January 19 Commodore's founder and president Jack Tramiel resigns from the company
January 18 Sinclair launches its Quantum Leap, the QL computer
February 2 Apple officially announces its new Macintosh computer
February 23 The QL micro suffers from delayed deliveries
Elan Computers changes its name to Flan following the discovery that another company had already registered the name Elan
March 1 Timex withdraws from the US market
March 15 *Jet Set Willy* announced
March 22 Flan Computers changes its name to Enterprise Computers
April 19 Alan Sugar formally launches the Amstrad computer, the CPC464
April 26 Tatung announces the Einstein computer
The mystery of the non appearing QL is revealed – SuperBasic and QDOS won't fit into the 32K Rom, so first machines delivered will come complete with an Eprom plugged into the back
June 7 Dragon Data goes into receivership
Argus Specialist Press buys out veteran software company Quicksilva
June 14 Commodore launches the C16 and Plus/4
Camputers, manufacturers of the Lynx micros, goes into liquidation
July 5 Flamboyant software house Imagine crashes
Psion announces the Organiser pocket computer
July 12 Jack Tramiel buys Atari from Warner Communications for $240 million
July 19 Dragon Data is bought by Eurohard SA of Spain
August 23 Commodore database Compunet is set up
US Gold is founded by Ocean and distributor Centresoft to publish US games in the UK under licence
September 5 Commodore announces that it is negotiating to buy a company called Amiga in order to sell Lorraine, its 68000-based micro
September 20 Acorn launches a range of micros called the Acorn Business Machines
September 27 Seven Japanese manufacturers (Canon, Hitachi, JVC, Mitsubishi, Sanyo, Sony and Toshiba) launch the first MSX micros in Europe
Jack Tramiel announces that Atari will produce non IBM compatible 16- and 32 bit computers in early 1985
Ghostbusters is previewed at the *Personal Computer World* show
October 18 The Spectrum Plus arrives in the shops
Ocean buys up the name Imagine to use as an arcade games label
November 1 ICL releases details of the One Per Desk, a machine based around Sinclair's QL technology
November 22 Ultimate launches *Knight Lore*
November 28 Sinclair confirms that it is developing a portable micro – to be launched in 1985

1985

January 3 Infocom publishes an adventure game based on *The Hitchhikers Guide to the Galaxy*
January 10 Two ST models shown by Atari for the first time at CES in Las Vegas
Commodore exhibits its new machine, the C128
The Enterprise 64 micro finally goes on sale
January 17 Sinclair launches the C5 electric vehicle
January 24 Commodore uses the *Which Computer?* show for a first showing of its IBM PC compatible micro
January 31 Quicksilva announces plans for a charity compilation tape, Soft Aid. Proceeds to go to the Band Aid Trust
February 7 Oric crashes
February 14 Acorn's USM shares are suspended
February 28 Olivetti rescues Acorn, taking a 49 per cent stake in the company
April 4 Robert Schifreen and Steve Gold arrested on charges relating to hacking into the Prestel database
April 25 Amstrad launches the CPC664
May 2 Acorn's BBC B+ reaches the shops
May 16 First hints that Sinclair plans a 128K version of the Spectrum appear
May 31 *Way of the Exploding Fist* launched by Melbourne House
Commodore begins packaging the C64 together with tape deck, joystick and software
June 6 Sinclair announces it is looking for £10–£15 million finance. Sir Clive steps down as chief executive
June 13 Amstrad launches the CPC6128 – in the US!
Commodore sets a date for the first showing of the Amiga
The Commodore 128 is exhibited at the Commodore show
June 20 Publishing magnate Robert Maxwell declares he will take over Sinclair Research
June 27 Acorn's shares are suspended for a second time
July 25 The Commodore 128 machine is launched in the UK
August 1 Commodore launches the Amiga A1000 in the US
August 15 Robert Maxwell pulls out of his bid for Sinclair Research
The Amstrad CPC6128 becomes available in UK shops
August 22 Amstrad launches the PCW8256
Olivetti increases its stake in Acorn to 79.8 per cent. Shares trade again
September 12 Atari shows the first of its ST machines in the UK at the *PCW* show
September 28 The Spectrum 128 is launched – in Spain!
October 10 Digital Research alters the appearance of the screens on its new operating system Gem after complaints of copyright violation by Apple
October 17 British Telecom buys Beyond Software
October 24 The receiver is called in at Sinclair Vehicles
November 14 British Telecom sets up a new software label, Rainbird
December 5 First news of Amstrad's plans to tackle the IBM PC compatible market

1986

January 9 Acorn announces details of its Master System series
Commodore closes down its plant at Corby
January 23 Commodore launches the Commodore 128D at the *Which Computer?* show
Rainbird announces it will be releasing *The Pawn*
February 8 Commodore hits financial trouble after a string of poor results
February 13 The Spectrum 128 is launched in the UK
April 10 Amstrad buys the rights to Sinclair's computers and name for £5 million
May 1 Schifreen and Gold found guilty in hacking trial
May 15 The Amiga computer is finally revealed to the British public
June 12 Commodore launches the new look C64, the C64C, in the US
June 26 Amstrad attempts to block plans for third party companies to produce their own QL machines
July 3 Enterprise Computers goes into receivership
September 4 Amstrad unveils its PC compatible machines, the PC1512 range
September 11 The Spectrum Plus 2 is launched at the *PCW* show
Also at the show, Atari previews its Mega STs
October 23 The first of the knocking stories about the Amstrad PCs appears. There are worries that the machine may overheat. Amstrad counters hotly, agrees to install fan in the machines, advises users not to bother with it
October 30 Commodore cuts the price of the Amiga
November 6 Beyond shows preview screens of its *Star Trek* game
Amstrad raises the price of its PC1512s
November 20 Commodore plans new Amigas – the A500 and A2000
December 18 Microprose and US Gold part company
Atari's 520STFM becomes available

1987

January 15 Atari launches a low cost PC clone at CES. Amstrad shows its PC1512s to the US market at the same time
February 12 Mastertronic takes over Melbourne House
February 18 Sir Clive Sinclair launches the Z88 portable micro at *Which Computer?* show
March 13 Commodore surprises everyone with a low cost PC clone at the Hannover Fair
and launches the A500 and A2000 in the UK
April 10 IBM announces its PS system micros to follow on from its PC standard, set five years previously

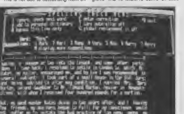
A star is re-born

Wordstar has long been recognised as one of the most widely used and best known word processing packages. Here, Peter Worlock reviews its latest incarnation, Version 4.

When it comes to word processing on microcomputers *Wordstar* has long been the software package against which all others are judged.

This is not due to outstanding merit on the part of of *Wordstar*. When other packages were judged they were often found to be much better.

Wordstar was never the fastest of programs, and as MicroPro bolted on extra features it slowed down further. Moreover, the early versions had some very cranky features such as the choice of control keys and the fact that *Wordstar* would happily try and save a file to a protected disc and then crash out into the operating system when it failed (losing your work in the process).



Despite these problems, *Wordstar* quickly established itself as the "standard" word processing software, demonstrating the truth of the old adage "Nothing succeeds like success".

Wordstar soon reached a kind of "event horizon" whereby it sold more and more copies because so many copies had already been sold.

If you wanted to exchange files with a friend, chances are the friend had a copy of *Wordstar*. If you had to write on a strange computer, chances are the computer was running *Wordstar*. Even if you didn't particularly like *Wordstar* (and I, for one, didn't) there were very good reasons for getting a copy.

Now, after many incarnations (*Wordstar CP/M, Pocket Wordstar, Wordstar 2000*) we have arrived at *Wordstar Professional Version 4* running on IBM PCs and other MS DOS compatibles.



Wordstar's spelling checker (above left) displays its own menu and commands. All functions are accessed with a single keystroke. *Word Finder*, the thesaurus (left), uses a similar menu, here displaying alternatives for 'bad'. (Above) the familiar *Wordstar* screen with menu. Old-time users will notice some new additions such as Esc for shorthand commands.

continued on page 20 ▶

SOFTWARE REVIEW

◀ continued from page 19

Features

First and perhaps most important is the fact that this latest version is the genuine *Wordstar* it looks like *Wordstar* acts like *Wordstar* and will read and write real *Wordstar* files (unlike *Wordstar 2000*)

But more obvious than this is the size of the package In a box the size of several bibles the program comprises no fewer than six discs a large comprehensive manual, keyboard overlay cards quick reference cards and a subsidiary manual for the *Word Finder* sub-program

Before you can begin using *Wordstar* you must install the beast on your system This is not as daunting as it appears – on our Amstrad 1512 it took about 15 minutes

First back up the main program spelling dictionary and thesaurus discs Next install *Wordstar* for your system (for monitor printer and disc drives) Then install *Word Finder* Finally boot up *Wordstar* from your working copy and away you go

If all this sounds off-putting to first time or inexperienced computer users it shouldn t Micropro has bent over backwards to make the process as painless as possible and all stages are clearly explained in the excellent documentation

There s even a cute tutorial disc which introduces computers keyboards and *Wordstar* with the help of a few simple games

Version 4 of *Wordstar* itself is a revelation It is very fast and this despite the fact that Micropro claims to have made more than 120 improvements to the program

Some of these are *minor* but useful – more and better delete options and cursor movements for instance But many are substantial including the ability to create and edit multiple columns in your documents thus making it very easy to create tables

Rules and boxes

You can also create rules and boxes using graphics characters and there s a 14 function maths calculator and block math operations which are incredibly useful for jobs that need quick calculation but either aren t suitable for a spreadsheet or which don t justify leaving the word processor and loading a separate spreadsheet program

Headers and footers can now occupy more than one line but surprisingly there s still no facility for using seperate headers and footers on left and right hand pages

The archaic control commands (control KD to save the current file for example) remain but many now work in tandem with the dedicated cursor and function keys which can be further customised to suit your own preferences

Personal customisation is one of the major features of *Wordstar* and *Version 4* takes this further You can configure the system to work in more or less just the way you want it

Perhaps the most impressive features of the new package are things that might normally be considered as programs in their own right For example mail merge is a built in standard feature and surprisingly easy to use

A spelling checker is built in and always available You can either check a word before typing it or check an entire document If any word is not found you can correct it, accept it and add it to your own dictionary accept it without adding it to your dictionary or accept one of the suggested alternatives that *Wordstar* offers (nipples instead of Naples ?)

The thesaurus

Even more fun is *Word Finder* This is a thesaurus/synonym finder and really is a program in its own right but one that has been configured to work with *Wordstar*

You can run *Word Finder* before loading *Wordstar* and *Word Finder* then co resides in memory Any time you need a synonym simply place the cursor on the word in question press Alt 1 (or whichever combination you prefer) and you are offered a collection of alternatives

You can get alternatives to the alternatives by repeating the process If *Word Finder* can t find the exact word it will try a close match – sometimes with odd results For example for commander (noun) it acted on command (verb)

If you find a word you like just place the cursor on it press RETURN and the substitution is made The whole process is very flexible and fast

Oh and by the way *Wordstar* no longer kills itself – and your file – if you try to save it to a protected disc Indeed, it is now so security conscious that it will not allow you to edit a file loaded from a protected disc and the menu itself carries the legend Protected Menu

Conclusions

Wordstar Professional Version 4 is no longer merely a word processor It is a complete system for creating editing and manipulating words

Offhand I can t think of another package that comes close Yes there are packages that offer facilities missing from *Wordstar* Facilities like multiple fonts the ability to merge graphics and text and so on

Some of the less dramatic omissions are more worrying I d really like to see left and right hand headers and footers for example And the multiple column features don t really go far enough

But when a program offers you so much it seems churlish to quibble about failings like these

At the price, *Wordstar* is too expensive, and too powerful in any case for casual users of word processing software

But the good news is that Micropro is offering an attractive upgrade for existing owners of earlier versions of *Wordstar* (Note owners)

If you have a copy of *Wordstar Wordstar Professional* or *NewWord 3* you can get a copy of *Version 4* for a paltry £99 until the end of July

If you are a newcomer to the joys of *Wordstar* the choice is more difficult At £399 it s a product only for serious users Unless you fall into that category there are many more packages that represent better value for money

status line

```
 L T2            7N1 L01 C01 Insert Align
                        E D I T   M E N U
   CURSOR      SCROLL       ERASE      OTHER                   MENUS
 ^E up        ^W up       ^G char    ^J help                ^O onscreen format
 ^X down      ^Z down     ^T word    ^I tab                 ^K block & save
 ^S left      ^R up screen ^Y line   ^V turn insert off     ^P print controls
 ^D right     ^C down    Del char    ^B align paragraph     ^Q quick functions
 ^A word left   screen    ^U unerase ^N split the line   Esc shorthand
 ^F word right                       ^L find/replace again
L----!----!----!----!----!----!----!----!----!----!----!-------R
July 7, 1987                                                         <
                                                                     <
Gulliver's Travel Service                                            <
152 Lilliput Street                                                  <
San Francisco, CA 94113                                              <
                                                                     <
Dear Mr Gulliver,                                                    <
                                                                     <
I saw your recent advertisement in the newspaper and I am
interested in the European tour package you are offering this
month  My wife and I are interested in seeing all of the
countries you've listed, but we were wondering if we can add
Yugoslavia and Greece to the trip                                    <
                                                                     <
```

ruler line

flag column

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Sinclair User Classic (May 1987)
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Don't miss out on this incredible new game!

(OK, Spectrum owners, so screens six and seven are difficult. Why not try jumping into the deadly pit.)

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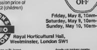
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Beware the mousE

Turn your PCW machine into a Wimp, with the AMX Mouse package. John Cook finds the mouse and associated software providing windows and icons easy to use

Wimps. Two years ago in the home sector the mention of a Wimp was always associated with a particular breed of programmer – while a Wimp environment inevitably conjured up images of an untidy bedroom.

Two years on things have changed. It's difficult to find a micro under £500 which doesn't offer a Wimp (Windows, Icons, Menus, Pointers) environment at least as an optional extra and it's easy to see why Wimps are wonderful.

The need for Wimps arose as the computer literacy of the average computer user fell. Manipulating the intricacies of an operating system might be OK for a professional but for a computer novice it's a minefield designed to provoke a severe case of technofear at the touch of a button. "There must be a better way" was the plaintive cry of thousands as they struggled with their user manuals – and as hardware limitations began to dwindle there was.

Smalltalk

The fundamental Wimp concept was conceived by Xerox with the Smalltalk project, but first brought to the marketplace by Apple with expensive Macintosh predecessor, the Lisa.

The idea was to try and make the operation of the system as natural as possible and to relate concepts such as data files, programs and documents to naive users by representing them pictorially – icons.

The operation of the system would be structured via a series of menus which would appear as drop down windows when summoned, and item selection and manipulation would all be carried via an on screen pointer controlled by a mouse – basically an upturned track ball with its movements across a surface mirrored by the pointer.

Formerly its use had been confined to CAD and drawing applications but mice were a vital part of the Wimp philosophy, freeing the user from the limitations of the keyboard.

You no longer had to type to use a computer. You moved the pointer across the screen with the mouse. You no longer had to get to grips with complex operating system syntax. To select an item you pointed to it and pressed a button on the mouse.

To get a directory of a disc you pointed to a picture of the disc and pressed twice. Its contents would appear as pictures in a window.

To copy a file from one disc to another you selected it, then moved its outline with the mouse over to the Disc B icon. Simple.

After appearing on the Lisa, then the Macintosh, Wimp systems started to take off with the development of Gem (Graphic Environment Manager) by Digital Research – which itself tussled with Apple over alleged similarities – less successfully Microsoft's Windows and recently even a system for the Commodore 64, Geos. And now, low and behold, a Wimp system for the Amstrad PCW from Advanced Memory Systems, with the AMX Mouse.

The AMX mouse package offering the Windows, Icons, Menus and Pointers environment for your PCW machine

AMX mouse

Advanced Memory Systems has been producing respectable hardware/software mouse based packages for years – and this one has got to rate as one of the best. But exactly what do you get for your £79.95?

First of all, the stand alone PCW doesn't come with a mouse – so AMS supplies you with one, together with an interface that fits on to the expansion port of the computer. The interface itself has a through-bus that allows piggy-backing of other interfaces – like the RS232 interface for instance.

It is the mouse, if anything, that provides the only major disappointment of the package. It is very light and has a plasticky uncertain feel as you manoeuvre it across the desk top. If anywhere, this is where the costs have been cut. It has three buttons – although only two are used by the present software, the left for selection, the right to cancel.

The Kempston PCW mouse (the only

other on the market at £89 95) is a considerably better piece of kit per se but when you come down to the software supplied the AMX mouse comes out way on top

With Kempston s package you get an adapted version of the tried and tested *Write Hand Man* (a concurrent desk accessory package) and a RSX patch that allows you to use the mouse in the place of cursor input With the AMX mouse you get a full blown Wimp environment together with a full range of neat desktop accessories which run concurrent with the system but not while another program is running under the system

Wimp environment

Having connected the interface and the mouse you load in the driving software supplied on a single disc Initially you must load CP/M first and type DESK but there is a simple Startup option that automatically creates autoboot disce for you

When the driving software loads up you are presented with a new screen layout the Wimp environment Gone is the dreaded A> prompt – replaced by seven icons running down the right hand vertical of the display a menu bar along the top a window in the centre displaying the contents of the disc again as icons and a pointer

Users familiar with the Wimp environment will find no surprises – and new users should discover that the new techniques are simple to pick up

Windows can be moved by clicking on the title bar along the top and moving the mouse while holding the left hand mouse button down (a mouse technique known as dragging) You find that an outline of the window moves with it Release the button when you reach your new position and the window is redrawn intact.

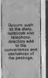
Windows are closed by clicking on the box on the top left dorder resized by dragging on the box, bottom right and if necessary the contents of windows can be scrolled left/right up/down by clicking on the appropriate scroll bar

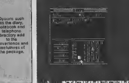
Items on the selected disc are displayed in the window as labelled icons The type of icon displayed for any file will depend on the filename extension Those ending COM (programs) will be represented by a picture of the PCW Those with TXT will look like a letter There is some humour here too – those with BAK are show by a safe!

The seven icons permanently on the right of the screen represent the three disc drives the three main desk accessories Desk Diary Memo Pad and Address Book and a Trash Can for deleting files

Clicking on a disc icon will give a directory of its contents displayed in a window Clicking on an accessory icon will activate that function and all three perform well The Trash Can is where you drag anything that you want erased and foolishly this is all too easily done

Any file displayed in a window can be dragged over to the Can and erased by just releasing the button Erased permanently A simple Are you sure? dialling box would


Options such as the diary, notebook and telephone directory add to the convenience and usefulness of the package.





continued on page 24 ▶

◀ continued from page 23
have saved most of the many minor tragedies that are certain to occur in the future because of its absence

Menu Bar

Simple disc management can be carried out by just clicking and dragging – but for getting more information about or renaming a file the File option on the menu Bar must be selected

When selected a menu drops down and you can highlight whatever option is needed some of which duplicate action that can be carried out via mouse only

The other options on the Menu Bar are Edit (with which you can manipulate text within the system) View (allowing you to display files not as icons but with text) Special (for creating startup discs and exiting to CP/M) and a mouse giving you access to five more desk accessories

Jotter is a much cut down version of Memo Pad (for those particularly small thoughts perhaps) while Control Panel enables you to set keyboard repeat rate and delay a mouse speed and a desk top colour a choice of inverse or non inverse as well initialising the system clock and date

Naturally these have to be reset each time the machine is switched off The array of goodies is finished off with an alarm clock a calculator and a sliding block puzzle – for the particularly overstressed executive Once called up all these can be manipulated and used via mouse

Conclusion

Our version 1 00 performed well, without crashing once throughout testing and how many 1 00s can you say that about? Overall it is designed well and we found it easy to use Those familiar with Wimp systems will be well satisfied those not should pick up the concepts quickly and be delighted with the results

The only reservation must be about the lastability of the mouse supplied with the system with lacked responsiveness and felt insubstantial

If you want a mouse only – go and grab Kempston s but the AMX software is superior in almost every department and further support in the shape of paint and publishing AMS products are promised for later this year together with a GSX device driver

On balance I d go for the AMX mouse

Product *AMX Mouse* **Price** £79 95 **Supplier** Advanced Memory Systems 166 70 Wilderspool Causeway Warrington WA4 6QA (0925) 413501/2/3

SPECIAL OFFER



Spectrum Micro Source (for less...)

Hands up those who remember the Currah Micro Source

Of course you do, you know, that Rom cartridge for the Spectrum comprising a Z80 macro assembler 16 bit integer Forth and debugging toolkit

The product has been sold by a number of companies but now it s fallen into the generous hands of Simmons Electronics

Generous because Simmons has teamed up with *Popular Computing Weekly* to offer you this handy utility Rom at a very special price

Simmons Electronics is selling Micro Source at £19 95 For all versions of Spectrum But if you collect the token below and the second token in next week s *Popular* you can get £5 off the Micro Source cartridge

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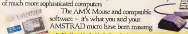
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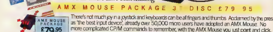
What's so special about the Mac, the Atari St, The Amiga, Windows and Gem?

It's no surprise that nearly all new 16 bit 'state of the art' micros now come with a Mouse and Wimp environment (Windows, Icons, Menus and Pointers) as standard.

With the AMSTRAD PCW you already own one of the classic micros and by simply adding the AMX Mouse and Desktop you can achieve the same ease of use, freedom and versatility of much more sophisticated computers

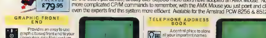


The AMX Mouse and compatible software – it's what you and your AMSTRAD micro have been missing



AMX MOUSE PACKAGE 3" DISC £79 95

There's not much joy in a joystick and keyboards can be all fingers and thumbs. Acclaimed by the press as 'the best input device', already over 50,000 micro users have adopted an AMX Mouse. No more complicated CP/M commands to remember, with the AMX Mouse you just point and click, even the experts find this system more efficient. Available for the Amstrad PCW 8256 & 8512.



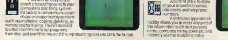
GRAPHIC FRONT END

Provides an easy to use graphic based front end to your computers disc filing system including a comprehensive set of disc management operations such as cataloging, copying, deleting, renaming and formatting. There's no need to enter a command to run programs from disc, just point the mouse at the representing icon and click the button.

TELEPHONE ADDRESS BOOK

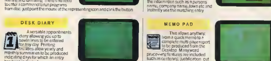
A central place to store all your important names, addresses and telephone numbers.

A database type search facility allows you to enter any part of the information such as a persons name, company name, town etc and instantly see the matching entry.



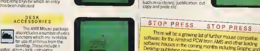
DESK DIARY

A versatile appointments diary allowing you up to seven lines to be entered for any day. Printing facilities allow yearly and monthly summaries to be produced indicating days for which an entry has been indicated.



MEMO PAD

This allows anything from a quick memo to a complete multi page report to be produced from the Desktop. Many word processing features are included such as centering, justification, cut, copy and paste etc.



DESK ACCESSORIES

The AMX Mouse package also includes a number of extra functions which are available for use at all times from the desktop. These include a jotter, alarm clock, calculator, puzzle and control panel – the type of tools found on a real desk top!

STOP PRESS   STOP PRESS

There will be a growing list of further mouse compatible software for the Amstrad PCW from AMS and other leading software houses in the coming months including Graphic and Desktop publishing programs

---

The superb product is available now from all good computer dealers or direct by cheque, Access or Visa. All prices include VAT and post and packaging.

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Protect yourself

The field of copyright as it applies to software is a minefield, despite an amendment to existing laws in 1985. Solicitor John Mawhood aims to clarify the issue

If you are hoping to get the A B C of copyright law as it applies to computer programs I am sorry to disappoint you at the moment the law in this area is not cut and dried and do not believe anyone who says otherwise

Copyright started as the name suggests with the right to control the making of copies of a printed book and was first recognised by Parliament in 1709 Unfortunately after a good start as every new media invention (photography, gramophone radio cine film television etc) came along the concept of copyright has been further and further stretched to cover the copying of more and more kinds of media

Lawyers have been worried that if the law tries to control more than just the copying of *things* (books records tapes discs etc) the door would be open for people to claim copyright to an *idea* Ideas are very difficult to control and besides it is not in the public interest that one person should always be able to stop others copying an idea

Rather than trying to make a fresh start to tackle the problem of computer software Parliament has slapped a patch over the cracks saying "all computer programs are to be treated as literary works and are therefore within copyright" (Copyright (Computer Software) Amendment Act 1985) Generally this means that the author owns the copyright which lasts for the period of the author's life and fifty years after their death

Very simply copyright in the UK is of two kinds copyright in the "original work" and in the "derivative work" "Original" in this context means that you have put enough of your own knowledge creative work skill and judgment into the work and for UK copyright law to apply that you are a British or Irish national or you are resident or "domiciled" in the UK

For example if you write an "original" book you are the author of the actual typed or hand written copy and unless you sell your rights in that work to someone else the copyright belongs to you You can agree with a publisher to print copies of your book and sell them The publisher will own the "derivative work" copyright – the right to make copies of the book as published by them but not the "original work"

As the law stands at the moment if you write a computer program it is the same as if you had written a book or a poem only the law recognises that computer programs can be easily translated into different computer languages and into machine code All such translations and even the "storage" in a computer of a program can be breaking the author's copyright

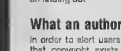
What happens when you buy a copy?

When you buy a copy of some software you do not buy the copyright in it The person who owns the copyright is only allowing you to use the program stored on the cassette or disc With business software costing more than a few pounds you will probably see a bit of paper inside the plastic seal when you buy it called a "licence" There will probably be a sticker on the package saying "If you open this package you accept the terms of the licence return it to the manufacturer unopened if you do not for a refund" (see panel on opposite page for more on this)

Apart from saying exactly how you can use the software the licence will probably disclaim liability for any defects in the software and say that if you return a registration card you will be entitled to upgrades etc It is quite possible that if you do not return the registration card that their liability for defects will not be excluded – but this has never been tested in court and unless you have the kind of money to spend on finding out

What an author should know

In order to alert users – or anyone else – that copyright exists on your work you should insert at or near the beginning or





Micropro's Wordstar – not only one of the most successful word processors, but also the most copied

end of your work the copyright symbol, © your name and the year of publication. Ideally in a computer program this will mean including this in the first screen shown to the user and also in the code itself so if it is machine code put a few bytes in with the right Ascii codes. If possible use the copyright symbol and not (c), but this is not possible in pure Ascii a second best is to use the word copyright itself – but these may not be enough to qualify under various nations copyright conventions.

Copying even parts of someone else's code will usually be breaking their copyright. If you write something from scratch without copying and then find it is identical to someone else's you have not infringed their copyright but you may have difficulty proving this unless you wrote yours first and have done something like posting a copy of your source code to yourself in a carefully sealed letter which you do not open (and hope the postmark date is clear) or even better send it recorded delivery – or deposit it with a bank. If theirs is identical perhaps they copied yours, or what you have written is not original.

Seriously though if you want to have a hope of proving the originality of your work it is essential that you keep copies of the source code at the various stages of development with some means of proving the date at which they were made.

Another step you can take to help in proving that someone is using a copy of your code is to include in your distributed program portions of code which are redundant or have an odd construction. If these appear in a copy then it is a useful indication of where it came from.

Very often programs are not developed by one author to the stage where they are ready to sell. It is more likely that you have a good idea, perhaps some code which resulted but you need help to make it into a finished product.

If you do have a program that is worth marketing try contacting an agent first but whoever you speak to insist that they agree in writing first that your discussions are *in confidence* and try to make a note of what you have discussed at the time (even better send them a copy to confirm it). But if you are at that level of business then you really ought to take legal advice.

Broadly speaking if you impart new ideas to someone who has accepted a duty of confidence to you then you may be able to prevent them from taking advantage of their position later.

If two people work on a program jointly and it is not possible to say who wrote what then the copyright in the program is jointly owned. This can create problems if you do not agree over what to do with it – again you may need advice.

If you are employed to write a program for someone although the period of copyright is worked out from your lifetime the copyright belongs to your employer and not to you. Be careful about writing a program on someone else's computer – there is an argument that copyright in your program could belong to the owner of the computer!

If you use a package to create a piece of software unless the software you have written includes code that does not originate from you you should be the sole owner of copyright in the code. However if it needs other code to run for example a computer language you do not own the copyright in the language program (unless you wrote the language too).

This is another reason for machine code being a good form in which to sell a program.

There may be other methods of getting effective protection for your rights in a product such as Trade Mark and in some circumstances Patent but these are outside the area covered by this article.

Conclusion

The law of copyright in England appears to be a case of make do. Very few cases in the computer field have come to court because it is very expensive. Would it not be better to have a law which tackled directly the problems of protecting rights in information technology? The uncertainty we have now only creates a fear of being ripped off and makes developing software an even more risky business.

As you will appreciate this is only a general overview of the area of copyright intended to help you understand it. You should not treat this article as a substitute for advice and I regret that I cannot accept any responsibility for any loss or damage arising.

The problem of copyright in software is a thorny one and the various solutions proposed by software publishers have been no less problematical.

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Opening the package is generally the point of no return – but it depends on the particular licensing agreement

Beyond Basic – the portability of C

The programming language C has been one of the most talked about for the last year or so. It is versatile, easy to learn and easily portable. This week, Kenn Garroch begins a series of articles on getting to grips with C, and how to use it. If you've ever wanted to know what lies beyond Basic, this could be the answer.

The C programming language combines the ease of programming you get with high level languages such as Pascal and Basic with the low level memory access associated with machine code. In addition to these, it's fast.

C was written at Bell labs (where the transistor was invented) in 1972 as an outgrowth of a language called B which itself was an outgrowth of BCPL (BCPL was based on Algol, which is a high level programming language used on many mainframe computers). The original aim of C was to combine ease of programming with speed and portability.

The reason for needing C was that Bell was designing the operating system Unix, of which you may have heard. It wanted Unix to be used on as many machines as possible so the language in which it was written had to be transferrable to other processors without too much fuss.

Assembler language

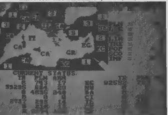
To this end, C is designed so that when it is compiled it produces a set of assembler language statements which can then be assembled for the appropriate machine. The section that produces the assembler code is really the only bit of the standard language that is machine specific.

With most machines, there are lots of commands included in the C package that can be used in programs to save programming time and effort.

These pre-defined commands reside in what is called a library file. For instance, in Hisoft's Amstrad C, there is one library file that contains all the commands that would be available from Basic and another (in the CP/M version) that contains a set of graphics routines.

C is a structured language and in some ways the commands are very like Pascal. In fact if you have ever written Pascal programs, you'll have no trouble using C. One of the features of the language is that it has a relatively small number of commands compared to other languages, Basic included. These commands can be put together to form more complex commands which can then be used directly.

PSS's strategy game *Annals of Rome*. The IBM, Atari ST and Amstrad PCW versions are all written in C (IBM and ST versions currently in development)



String handling

For instance, there are no strings or string handling commands as such. However, by using character arrays and defining functions that can access them, string handling can be made really easy. Usually these come as part of a library so you don't need to write them.

The structure of a language defines the way in which commands are grouped together and this generally falls into three categories: decisions and looping, procedures, and functions. The decision and looping commands are the IF ELSE, WHILE, CASE etc. These control the flow of the program, and in C, as in most other modern high level languages, there is no equivalent to the GOTO command in Basic.

Bad form

The reason for this is that it is bad form to jump from place to place within a program and, if this is common, the program can be very hard to follow. The

alternative is to use looping commands such as WHILE (while something is true do the following set of commands)

This makes the program much easier to understand which as anyone who has tried changing a program written a year or so ago is pretty useful Instead of trying to figure out I wonder how I did that e program written in C should make sense

Procedures

To make programs even easier to follow procedures and functions can be defined A procedure is a sequence of instructions that is separate from the main program and is given a name that identifies what it does it is a doing command ie it produces no result

A function is similar to a procedure except that it produces a result eg, P=POINT(X Y) might be a function that returns the value of a dot on the screen C is unusual in that it has no procedures only functions Fortunately the functions are flexible enough to be procedures as well The thing to remember is that they are always known as functions whether they produce results or not

A C program is made up of a definition section where the variables constants and any library files are defined the main program and the defined functions Another way to help make programs readable is to give variables and constants meaningful names So if you want a counter you can actually name it counter and refer to it as such within the program The types of variables you can have in a C program are int float, char short long and double

These are more or less the same as those provided in Basic the difference being that once they are defined ie, for characters char S you don t need to use a $ sign (as in S$) to make sure the program knows it s a string

In some of the more recent versions of Basic it is possible to do the same thing but it is certainly not the norm

Printing information

One of the unusual things about C is the way in which things are printed on the screen The command that does the trick is printf (note that C commands do not have to be upper case (capital letters) they can be either, and are usually lower case) The function prints information on the screen in the following way printf(This is a message) simply puts *This is a message* on to the screen It does not do a carriage return and printf(So is this) results in *This is a messageSo is this* being displayed

To put formatting commands into a string the / character followed by the command is used /n denotes a new line and usually, but not always a carriage return So printf(Hi there/n) then printf(Ho there/n') puts the two messages on separate lines

Why change to C?

The thing to notice about format commands is that they are within the quotes A similar thing is done when printing out variables

The command %d is used to specify the position of the variable and then the actual variables are placed after the quotes For example if there were an integer variable a to print its value printf(a equals %d a) is used

If you have been using Basic for all of your programming why change to C? As you will see over the next few weeks C is very versatile it is easy to include machine code as part of a program if necessary it makes programming much easier since handling information is far easier than in Basic and more than anything it is easy to learn

Next week Kenn Garroch continues with some simple C programs

Selected C compilers

Program *HiSoft C* **Micro** Spectrum **Price** £25 00 **Supplier** HiSoft, The Old School, Greenfield Bedford MK45 5DE (0525 718181)

Program *HiSoft C* **Micro** Any CP/M Z80 based system eg Amstrad with disc drive **Price** £39 95 **Supplier** HiSoft address as above

Program *Lattice C Compiler* **Micro** Atari ST **Price** £99 95 **Supplier** Metacomco 26 Portland Square Bristol BS2 8RZ (0272 428781)

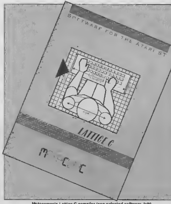
Program *Megamax C* **Micro** Atari ST **Price** £157 55 **Supplier** Selected Atari dealers including Silica Shop 1–4 The Mews Hatherley Road Sidcup Kent DA14 4DX (01-309 0300)

Program *GST C Compiler* **Micro** Atari ST **Price** £59 00 **Supplier** Electric Software Unit 8 Cromwell Business Centre New Road St Ives Cambs (0480 66433)

Program *Lattice C Compiler* **Micro** QL **Price** £99 95 **Supplier** Metacomco address as above

Program *GST C Compiler* **Micro** QL **Price** £59 95 **Supplier** Electric Software address as above

Program *Lattice C Compiler* **Micro** Commodore Amiga **Price** £129 95 **Supplier** Metacomco, address as above



Metacomco's Lattice C compiler (see selected software left)

DataTransfer

Umer Nalla

This program converts data produced by the Graphic Finder (Vol 6 issue 15) into normal character data format. The program also transfers the character set from the Rom into an area in Ram. The program then stores the shapes in place of the usual characters.

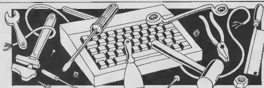
Data Transfer requires the following inputs: *Load address*, where the shapes data produced by GF is loaded in. *Char address*, where the new character is set.

Start character, the code for the first character to be redefined (see manual).

Width is the width of shape.

Height is the height of the shape. Divide GF height by eight and round up.

The user must use a *CLEAR (char address – 1)* to accommodate the character set. To use it in your own programs add lines 9990–9997 to your program (ca is the address to load the character set at). Type *GOSUB 9990* to activate the character set at ca. Type *GOSUB 9996* to switch to the normal set. More than one character set can be used as long as you use the variable ca and *GOSUB 9990* to call it.



```
  1 REM © UMER NALLA 1987
 10 INPUT "Load Address ";la
 20 INPUT "Char Address ";a: LET ca=a
 30 IF a 64600 THEN BEEP 1,0: GO TO 20
 40 INPUT "Start Char ";sc
 50 LET s=a
 60 IF sc<32 OR sc>128 THEN BEEP 1,0: GO TO 40
 70 PRINT " Please wait... ROM to RAM transfer."
 80 FOR n=15616 TO 15616+763
 90 POKE s,PEEK n
100 LET s=s+1
110 NEXT n
120 LET k=0
130 CLS
140 INPUT "WIDTH ";wi
150 INPUT "HEIGHT ";hi
160 LET a=a+((sc-32)*8)
170 LET w=0
180 LET p1=la
190 LET nb=wi*hi*8-1
200 PRINT " Please wait...converting"
210 FOR k=0 TO nb
220 POKE k+a,PEEK (p1+w*wi)
230 LET w=w+1: IF w=8 THEN LET w=0: LET p1=p1+1: LET f=f+1
240 IF f=wi THEN LET f=0: LET p1=p1+wi*7
250 NEXT k
260 CLS
270 INPUT "Do you wish to SAVE character set ";s$
280 IF s$="y" OR s$="Y" THEN SAVE "chars set"CODE ca,768
290 INPUT "Do you wish to activate new chars set ";s$
300 IF s$="y" OR s$="Y" THEN GO SUB 9990
310 STOP
8999 REM Type GOSUB 9990
         Set ca to address of
         character set.
9990 LET s=ca-256
9991 LET n1=INT (s/256): LET n2=s-n1*256
9992 POKE 23606,n2: POKE 23607,n1
9993 RETURN
9994 REM
9995 REM Type GOSUB 9996 for normal chars set.
9996 POKE 23606,0: POKE 23607,60
9997 RETURN
```

Spectrum Rom Calls

Russell Thomas

As I indicated in the last issue you can combine any of these commands to form the basis of your own OS You could even mimic the Spectrum OS If you like using your own report messages etc As an example let s say we wish to stop the execution of our program if a certain condition arises and report the stop with our own message Then return to the Basic Editor To do this all we need to do is *WAITKEY$ LOWER CLS EDITOR*

100 IF THEN INPUT OS ERROR Bad string type USR 5598 RANDOMIZE USR 3438 RANDOMIZE USR 4777

This will require an extra key press to return to the listing If you want a list straight away use *AUTOLIST* in place of *EDITOR*

100 IF THEN INPUT OS ERROR Unknown command USR 5698 RANDOMIZE USR 3438 RANDOMIZE USR 4770

You may not wish to return to the Basic Editor at all but jump to your own routine as in the following

100 INPUT Press any key USR 5535 RANDOMIZE USR 3438 GO TO

An obvious use for your own OS is in designing your own language from within Basic It will run slowly but the programming problems you will come across are bound to excite and eventually educate you in the art of OS design Don t be afraid to experiment as the successes (and failures) are all part of learning and experience

System Variables

Below I have listed the SV s that I regularly use to produce effects I want or need in my programs If you know of any others of interest let us know via *Popular* so we can all have a go

23560 *LAST K* – Remembers the (Ascii code) last key to be pressed A useful alternative to INKEY$ which forgets it as soon as you let go

23561 *REPDEL* – Want a faster cursor? *POKE 23561 1 POKE 23562 1*

23609 *PIP* – That silly little click when you press a key Have a *POKE* and see!

23610 *ERR NR* – Useful one for detecting which error has occurred in a break protected program Add 1 to it to get the error error code

23613 *ERR SP* – Usually addresses an item on the Z80 stack to be used as a return if an error occurs Use *POKE 23613 PEEK 23730 –5* to disable **Break**. Better left alone

23617 *MODE* To change the cursor you get when using *INPUT* first *POKE 23617 X* Where **X** is any number you fancy Some are better than others

23618 23619 and 23620 *NEWPPC NSPPC* – Line No and Statement No to be jumped to Who said you can t execute a *REM* statement try the following

50 REM PRINT A REM STATEMENT' GOTO 70

60 POKE 23618 0 POKE 23619 50 POKE 23620 2

70

23621 23622 and 23623 *PPC SUBPPC* – Stores the line number of the line the computer is actually working on You can create a crude *TRACE* using *PPC* and *SUBPPC* Insert a line *DEF FN P()=PEEK 23621+256*PEEK 23622* in your prog and use *PRINT FN P()* in any lines you wish to trace

23624 *BORDCR* – Border colour/*ATTR* for lower screen Use *8*paper+ink* eg 8*7+0 is white paper and black ink Use this for security typing eg password entry Try

10 POKE 2364 63 INPUT A$ IF A$<> PASSWORD THEN NEW – The next line should put *BORDCR* back to normal of course

23625 *E PPC* – This is the Editor s current line (the one with the > on it *POKING* this and *S TOP* (see below) with a valid line number will cause the autolisting to be started at that line No

23627 *VARS* – Holds the address in memory of the start of your own variables (**a$** etc) See the manual for a better guide

23635 *PROG* – Holds the address in memory of the start of your Basic program You can move it (up) in memory if you like but make sure you move any subsequent SV s and any info addressed by them accordingly See your memory map for start up conditions This is an alternative to changing *RAMTOP* for storing machine code Do this to store it below your program

23637 *NXTLIN* – Holds the address of the next line (to be executed) in the program If you wish to find the address of line 200 then insert

199 PRINT PEEK 23637+256*PEEK 23638 STOP and then type *GO TO 199*

More Rom calls in the final instalment next week

Icon Toolkit

Simon T Goodwin

This week features the remaining part of the data statement list for the actual Icon Toolkit program Next week we ll publish the Icon Designer program and accompanying documentation In the meantime I ll ask Simon if he wants to offer the programs on tape/disc Stay tuned

```
530 DATA 7F,A1,2A,2A,A0,23,23,22
540 DATA 2A,A0,CD,7F,A1,C9,21,10
550 DATA 00,ED,4B,2A,A0,ED,42,00
560 DATA CD,7F,A1,2A,2A,A0,2B,2B
570 DATA 22,2A,A0,CD,7F,A1,C9,3A
580 DATA 3A,A0,CD,DE,BB,ED,5B,2B
590 DATA A0,2A,2A,A0,CD,C0,BB,3E
600 DATA 05,CD,5A,BB,3E,5E,CD,5A
610 DATA BB,3A,35,A0,CD,DE,BB,C9
620 DATA DD,6E,00,DD,66,01,22,39
630 DATA A0,C9,DD,7E,00,47,21,7C
640 DATA A3,11,0A,00,AF,ED,52,19
650 DATA 10,FD,DD,5E,0A,DD,56,05
660 DATA DD,4E,02,DD,46,03,7B,77
670 DATA 23,7A,77,23,79,77,23,78
680 DATA 77,C5,EB,11,02,00,CD,A9
690 DATA A2,EB,E1,CB,3C,CB,1D,CD
700 DATA 1D,BC,E5,DD,7E,00,47,2A
710 DATA 39,A0,11,40,00,AF,ED,52
720 DATA 19,10,FD,EB,E1,01,10,DA
730 DATA CD,91,A2,C9,21,7C,A3,CD
740 DATA 33,A2,3E,01,32,3B,A0,06
750 DATA FF,C5,E5,ED,4B,2B,A0,ED
760 DATA 5B,2A,A0,CD,4B,A2,E1,C1
770 DATA 3A,37,A0,FE,00,20,0D,CD
780 DATA 33,A2,3A,38,A0,3C,32,38
790 DATA A0,10,DE,C9,3A,38,A0,32
800 DATA 36,A0,C9,7E,5F,23,7E,57
810 DATA ED,53,30,A0,23,7E,5F,23
820 DATA 7E,57,ED,53,32,A0,23,C9
830 DATA AF,32,37,A0,3A,30,A0,6F
840 DATA 3A,31,A0,67,ED,42,7C,FE
850 DATA 00,20,07,7D,FE,14,D0,18
860 DATA 08,C9,FE,FF,DA,7D,FE,EB
870 DATA DB,3A,32,A0,6F,3A,33,A0
```

continued on page 34 ▶

◀ continued from page 31

```
880 DATA 67,42,4B,ED,42,7C,FE,00
890 DATA 20,0A,7D,FE,1B,00,3E,01
900 DATA 32,37,A0,C9,FE,FF,D8,7D
910 DATA FE,E7,D8,3E,01,32,37,A0
920 DATA C9,C5,E5,1A,77,23,13,10
930 DATA FA,E1,01,00,08,09,30,04
940 DATA 01,50,C0,09,C1,0D,20,E9
950 DATA C9,7A,2F,57,7B,2F,5F,13
960 DATA E5,AF,67,6F,E3,7A,B3,20
970 DATA 02,E1,C9,06,11,CB,15,CB
980 DATA 14,38,10,10,FB,1B,14,E3
990 DATA E5,19,30,01,E3,E1,E3,CB
1000 DATA 15,CB,14,E3,CB,15,CB,14
1010 DATA E3,10,EC,D1,CB,2A,CB,1B
1020 DATA C9,DD,6E,06,DD,66,07,DD
1030 DATA 5E,DA,DD,56,05,DD,4E,00
1040 DATA DD,46,02,C5,E5,7E,12,23
1050 DATA 13,10,FA,E1,01,00,08,09
1060 DATA 30,04,01,50,C0,09,C1,0D
1070 DATA 20,E9,C9,DD,6E,06,DD,66
1080 DATA 07,DD,5E,04,DD,56,05,DD
1090 DATA 4E,DD,00,46,02,C5,C5,1A
1100 DATA 77,23,13,10,FA,E1,01,00
1110 DATA 08,09,30,04,01,50,C0,09
1120 DATA C1,0D,20,E9,C9,DD,6E,02
1130 DATA DD,66,03,DD,5E,04,DD,56
1140 DATA 05,CB,3C,CB,1D,CB,1D,BC
1150 DATA 18,0C,C9,DD,6E,02,DD,66
1160 DATA D4,2D,25,CD,1A,BC,00,5E
1170 DATA 00,DD,56,01,7D,12,13,7C
1180 DATA 12,C9,C5,E5,3A,A5,A0,77
1190 DATA 23,13,10,FB,E1,01,00,08
1200 DATA 09,30,04,01,50,C0,09,E1
1210 DATA 00,20,E7,C9,00,00,00,00
1220 DATA 00,00,00,00,00,00,00,00
1230 DATA 00,00,00,00,00,00,00,00
1240 DATA 00,00,00,00,00,00,00,00
1250 DATA 00,00,00,00,00,00,00,00
1260 DATA 00,00,00,00,00,00,00,00
1270 DATA 00,00,00,00,00,00,00,00
1280 DATA 00,00,00,00,00,00,00,00
1290 DATA 00,00,00,00,00,00,00,00
1300 DATA 00,00,00,00,00,00,00,00
1310 DATA 00,00,00,00,00,00,00,00
1320 DATA 00,00,00,00,00,00,00,00
1330 DATA 00,00,00,00,00,00,00,00
1340 DATA 00,00,00,00,00,00,00,00
1350 DATA 00,00,00,00,00,00,00,00
1360 DATA 00,00,00,00,00,00,00,00
1370 DATA 00,00,00,00,00,00,00,00
1380 DATA 00,00,00,00,00,00,00,00
1390 DATA 00,00,00,00,00,00,00,00
1400 DATA 00,00,00,00,00,00,00,00
1410 DATA 00,00,00,00,00,00,00,00
1420 DATA 00,00,00,00,00,00,00,00
1430 DATA 00,00,00,00,00,00,00,00
1440 DATA 00,00,00,00,00,00,00,00
1450 DATA 00,00,00,00,00,00,00,00
1460 DATA 00,00,00,00,00,00,00,00
1470 DATA 00,00,00,00,00,00,00,00
1480 DATA 00,00,00,00,00,00,00,00
1490 DATA 00,00,00,00,00,00,00,00
1500 DATA 00,00,00,00,00,00,00,00
1510 DATA 00,00,00,00,00,00,00,00
1520 DATA 00,00,00,00,00,00,00,00
1530 DATA 00,00,00,00,00,00,00,00
1540 DATA 00,00,00,00,00,00,00,00
1550 DATA 00,00,00,00,00,00,00,00
1560 DATA 00,00,00,00,00,00,00,00
1570 DATA 00,00,00,00,00,00,00,00
1580 DATA 00,00,00,00,00,00,00,00
1590 DATA 00,00,00,00,00,00,00,00
1600 DATA 00,00,00,00,00,00,00,00
1610 DATA 00,00,00,00,00,00,00,00
1620 DATA 00,00,00,00,00,00,00,00
1630 DATA 00,00,00,00,00,00,00,00
1640 DATA 00,00,00,00,00,00,00,00
1650 DATA 00,00,00,00,00,00,00,00
1660 DATA 00,00,00,00,00,00,00,00
1670 DATA 00,00,00,00,00,00,00,00
1680 DATA 00,00,00,00,00,00,00,00
1690 DATA 00,00,00,00,00,00,00,00
1700 DATA 00,00,00,00,00,00,00,00
1710 DATA 00,00,00,00,00,00,00,00
1720 DATA 00,00,00,00,00,00,00,00
1730 DATA 00,00,00,00,00,00,00,00
1740 DATA 00,00,00,00,00,00,00,00
1750 DATA 00,00,00,00,00,00,00,00
1760 DATA 00,00,00,00,00,00,00,00
1770 DATA 00,00,00,00,00,00,00,00
1780 DATA 00,00,00,00,00,00,00,00
1790 DATA 00,00,00,00,00,00,00,00
1800 DATA 00,00,00,00,00,00,00,00
1810 DATA 00,00,00,00,00,00,00,00
1820 DATA 00,00,00,00,00,00,00,00
1830 DATA 00,00,00,00,00,00,00,00
1840 DATA 00,00,00,00,00,00,00,00
1850 DATA 00,00,00,00,00,00,00,00
1860 DATA 00,00,00,00,00,00,00,00
```

PROGRAMMING: BBC

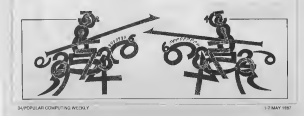
Magic Maze

Mark Weatherill

Okay BBC owners this is the big one Magic Mazes is a wonderful plat form game with bouncing sprites and continuous music It's also hellishly long

There are four listings in all the main program followed by three data listings which must be saved in order if you are a cassette user More details follow next week

If you can t bear the wait then send £2 00 (cassette) to 18 Kingsland Aylesbury, Bucks HP21 9SY, and Mark will send you a copy of the game



```
L.
10REM MAGIC MAZE by Mark Weatherill
20REM Listing one :save as 'game'
30REM
40REM Disc users set PAGE to &1200
50REM
60IF ?&900<>&60705010 THENCLOAD
70REM ONERROR GOTO 3290
80REM escape restarts game
90REM leave line 70 out until debugged!
100MODE5:VDU23;8202;0;0;0;
110HIMEM=&4000
120DEFPROCE:VDU19;1;0;:SOUND&10,-9,2,1:E%=E%-1:PRINTTAB(12,25);E%," ":VDU19;0;0;:IFE%<0 E%=20:PROCL:ENDPROC ELSEENDPROC
130DEFPROCL:L%=L%-1:FORQ%=10 TO 0 STEP -1:SOUND1,2,Q%*2,1:NEXT:?MX%=SX%:?MY%=SY%:PROCSCR(S%):ENDPROC
140DEFPROCS(y%):S%=Y%+y%:PRINTTAB(12,23);Y%:ENDPROC
150DEFPROCmv(X%,Y%):CALLmv:ENDPROC
160KS%=&5600:KY%=&563C:KXC%=&5678:KYC%=&5684
170MX%=&56F0:MY%=&56FB:NY%=&5706:MXD%=&5711:MYD%=&571C:DX%=MX%+55:DY%=MX%+66:LXL%=MX%+77:LXR%=MX%+88:LYU%=MX%+99:LYD%=&675E
180SP%=MX%+121:SC%=MX%+132
190RESTORE200:FORQ%=0 TO 10:READ DX%?Q%,DY%?Q%:NEXT
200DATA 2,2, 2,1, 2,1, 1,2, 1,2, 2,2, 2,2, 1,3, 3,1, 3,3, 3,3
210SO%=&4F00
220tmp=&70:mpc=&72:tmp2=&80:x=&82:y=&83
230x2=&84:hx=&85:ky=&87:kc=&89:k1=&8A
240apc=&404:bpc=&406:bindr=&434
250copy=&438:REM H%
260l=&C18:r=&C19:u=&C5%:d=&C1B
270PROCasm
280ENVELOPE1,129,0,0,0,3,3,3,-3,-3,-3,-4,77,0:ENVELOPE2,2,-1,1,0,3,3,0,-1,-1,-1,-1,77,0
290VDU23,224,&F8F8;&DFDF;&F8F8;&DFDF;
300VDU23,225,255,129,90,60,60,60,129,255
310VDU23,226,&FFFF,165,165,165,165,&FFFF;
320VDU23,228,24,36,66,129,129,66,36,24
330VDU23,229,255;255;255;255;
340VDU23,230,255,129,126,60,60,126,129,255
350VDU23,255,8+16,8+16+4+32,8+4+32+68,354,2+4,8+16+4+32+88,0+16+4+32,8+16
360MV%=50:V$="MARK"
370REPEAT RESTORE1350
380FORQ%=0 TO &3C:KXC%?Q%=KS%?Q%:KYC%?Q%=KY%?Q%:NEXT
390VDU26:CLS:PROCtitle:CLS
400S%=0
410K%=0:FORQ%=0 TO 59:IFKS%?Q%<>255 K%=K%+1
420NEXT
430L%=2:E%=20:Y%=0:J%=0:H%=0
440SM%=1
450?MX%=0:?MY%=10:?NY%=0
460PROCSCR(S%)
470REPEAT COLOUR3
480IFINKEY-97SM%=SM%EOR1:PRINTTAB(17,21);" ":IFSM%=0PRINTTAB(17,21);"Q"
490IFSM% IFADVAL-8=15PROCT
500IF?MX%=31 ?MX%=0:S%=S%+1:PROCSCR(S%)
510IF?MX%=255 ?MX%=30:S%=S% 1:PROCSCR(S%)
520IF?MY%=0 ?MY%=17:S%=S%+4:PROCSCR(S%)
530IF?MY%=18 ?MY%=1:S%=S%-4:PROCSCR(S%)
540CALL hitme:IFH% PROCE
550CALLpeeks
560IFJ% PROCj:GOTO690
570IF?d=0 PROCmv(0,1):SOUND&11,-5,100-(?MY%),1:GOTO630
580IFJ%=0IFINKEY-74 J%=1
590I%=0
600IFINKEY-98 PROCcb(1):PROCmv(-1,0):GOTO630
610IFINKEY-67 PROCcb(2):PROCmv(1,0)
620IF?&EC=0:*FX15
630
640CALLrest
650C%=KXC%+5*S%:D%=KYC%+5*Q%:CALLkeys
660COLOUR3
670H%=0:CALLhitk:IFH%:PROCS(10):SOUND&12,1,200,10:PRINTTAB(12,27),K%;" "
680UNTIL L%=-1 OR K%=0
690VDU28;19,19;
700IFL%=-1 PROCole ELSE PROCdum
710*FX15
720IFV%>MV% CLS:PROCTX(4,6,"Well done"):PROCTX(2,8,"Enter your name"):PROCTX(2,9,"(max 9 letters)"):INPUTTAB(0,11);V$:MV%=S%:IFLENV$>9V$=LEFT$(V$,9)
730UNTIL0
740DEFPROCcb(Q%):Z%=?MY%
750CALLs
760IFZ%MOD2=0 SOUND&10,-7,1,1
770IFQ%=1:IF(Z%<>1 ANDZ%<>0)Z%=0:GOTO810
780IFQ%=2:IF(Z%<>2 ANDZ%<>3)Z%=2:GOTO810
790IFZ%=0 ORZ%=1 Z%=Z%EOR1
800IFZ%=2 ORZ%=3 Z%=Z%EOR1
810?MY%=Z%:CALLs:ENDPROC
820DEFPROCj
830Q%=0:IFINKEY-98Q%=-1 ELSEIFINKEY-67Q%=1
840IFQ%=1 CALLs:?MY%=2:CALLs ELSEIFQ%=-1 CALLs:?MY%=0:CALLs
850SOUND&11,-6,110-?MY%,1
860IFJ%=1 PROCmv(0,-1) ELSE IFJ%=2 PROCmv(0,-1)
870IFJ%=3 PROCmv(0,-1) ELSE IF J%=4 PROCmv(Q%,-1)
880IFJ%=5 PROCmv(Q%,-1) ELSE IF J%=6 PROCmv(Q%,-1)
890IFJ%=7 PROCmv(Q%,1) ELSE IF J%=8 PROCmv(Q%,1)
900IFJ%=9 PROCmv(Q%,1) ELSE IFJ%=10 PROCmv(0,1)
910IFJ%=11 PROCmv(0,1) ELSE IFJ%=12 PROCmv(0,1)
920J%=J%+1:IFJ%=13 J%=0
930ENDPROC
940DEFPROCSCR(S%)
950VDU28,10,30,18;:COLOUR129:COLOUR3:PRINT"Mark's Magic Mazes"
960SX%=?MX%:SY%=?MY%
970ad%=&4F00+(S%*(6*10))
980FORs%=1 TO 10:Q%=s%-1
990ad%=ad%+Q%*6
1000LXL%?s%=?ad%:LXR%?s%=ad%?1
1010LYU%?s%=ad%?2:LYD%?s%=ad%?3
1020NY%?s%=ad%?4:SP%?s%=ad%?5:SC%?s%=ad%?5
1030NEXT
1040?kc=1:?k1=1
1050VDU20,26;31,15;30
1060IFS%MOD2=0 VDU19,1,1;0;19,2,2;0; ELSE VDU19,1,5,0;19,2,6,0;
1070T%=&4000+(S%*320):CALLscr:VDU26
1080C%=KXC%+5*S%:D%=KYC%+5*S%
1090FORQ%=0 TO 4
1100IF?(C%+Q%) 255 GOTO1130
1110?(C%+Q%)=?((KX%+5*S%)+Q%)
1120?(D%+Q%)=?((KY%+5*S%)+Q%)
1130NEXT
1140FORQ%=1 TO 10:MX%?Q%=LXL%?Q%:MY%?Q%=LYU%?Q%
1150MXD%?Q%=0:MYD%?Q%=0:IF LXL%?Q%=LXR%?Q% MYD%?Q%=1 ELSE MXD%?Q%=1
1160IF LXL%?Q%=LXR%?Q% IFLYU%?Q%=LYD%?Q% MY%?Q%=&FF
1170X%=Q%:CALLs
1180NEXT
1190X%=0:CALLs
1200GCOL0,2:MOVE 32,0:DRAW0,32:PLOT17,0,310:PLOT17,32,32:PLOT17,1200,0:PLOT17,32,-32:PLOT17,0,-310:PLOT17,-32,-32:PLOT17,-1200,0
1210MOVE0,300:PLOT17,1280,0
1220MOVE0,112:PLOT17,1280,0
1230VDU26:COLOUR126
1240COLOUR3:PRINTTAB(1,21);"Screen";TAB(11);S%
1250PRINTTAB(1,25);"Energy";TAB(11);E%:IFL%>-1 COLOUR2:PRINTTAB(16,21);STRING$(L%,CHR$255);" ":COLOUR3
1260PRINTTAB(1,23);"Score :";TAB(11);S%
1270PRINTTAB(1,27);"Items left";TAB(11);K%
1280PRINTTAB(1,29);"Best :";TAB(11);MV%;TAB(1,30),V$
1290ENDPROC
1300DEFPROCT
1310READ Q%:IFQ%=255 RESTORE1350:ENDPROC
1320e%=1:IFQ%=0 e%=0
```

continued on page 37 ▶


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◀ continued from page 35

```
1330IFQ%133 e%-2
1340SOUND3,e%,Q%,4:ENDPROC
1350DATA 9,13,13,13,9,13,13,13,13,13,21
,13,25,13,33,25,13,13,21,13,25,13,33,25,
137,13,21,13,25,13,30,25,13,13,21,13,25,
13,30,25,137,13,21,13,25,13,30,25,137,11
3,21,13,25,13,33,25,13,113,125,130,137,1
37,13,137
1360DATA137,13,130,125,121,117,121,117,
109,66,21,13,25,13,33,25,13,13,21,13,25,
13,33,25,13,13,21,13,25,13,33,25
1370DATA 57,61,61,61,57,61,61,61,57,57,
61,61,73,69,61,13,69,21,13,25,97,33,25,1
3,77,73,77,0,0,0,0,0,57,61,61,13,57,61,6
1,25,57,61,61,61,73,69,61,13,98,21,13,25
,97,33,25,13,77,73,77,13,25,13,33,25
1380DATA255
1390DEFPROCdun
1400FORQ%=10 TO 65 STEP4.SOUND1,2,Q%,4:
SOUND2,2,Q%+2,4.SOUND3,2,Q%+3,4 NEXT
1410FORQ%=0 20 10 NT%?Q%-0.NEXT
1420CLS:PROCTX(8,10,"Well done!"):PROCT
X(3,12,"You completed"):PROCTX(6,14,"the
 game")
1430ENDPROC
1440DEFPROCdie:*FX15
1450FORQ%-65 TO 10 STEP-4.SOUND1,2,Q%,4
:SOUND2,2,Q%+2,4:SOUND3,2,Q%+3,4:NEXT
1460FORQ%=0 TO 10:NT%?Q%=0.NEXT
1470CLS.PROCTX(8,10,"Game Over")
1480PROCTX(6,12,"press a key")
1490Q% GET
1500ENDPROC
1510DEFPROCtitle:VDU20
1520COLOUR1.PRINTSTRING$(20,CHR$224).PR
OCTX(7,2,"Magic * Mazes")
1530COLOUR2:PRINT''"  by M Weatherill"
1540COLOUR1:PRINTTAB(0,20);STRING$(20,C
HR$224)
1550COLOUR2.PRINT''"Keys:"''(Z) (X) (RET
URN)"
1560PRINT"TAB - tune on/off"
1570FORQ%=1 TO 19:PRINTTAB(0,Q%),CHR$22
9;TAB(19,Q%),CHR$229 NEXT
1580REPEAT ?MX%-8:?MY%=18
1590X%-0:CALLs
1600FORQ%=0 20 20:PROCch(2):PROCmv(1,0)
.A$=INKEY$12:*FX19
1610IFA$ " "Q%=20
1620COLOURTIME MOD3.PRINTTAB(4,12);"Pre
ss Space"
1630NEXT
1640IFA$=" "GOTO1700
1650FORQ%-0 TO 20:PROCch(1):PROCmv(-1,0
):A$=INKEY$12:*FX19
1660IFA$ " "Q%-20
1670COLOURTIME MOD3.PRINTTAB(4,12);"Pre
ss Space"
1680NEXT
1690X%=0:CALLs
1700UNTILA$=" "-ENDPROC
1710DEFPROCass
1720FORa% 0 TO 2 STEP2
1730sdat &A00
1740P%-&5100
1750[OPTa%
1760.s LDA NT%,X:CMP#255 BEQstop
1770 initadr ASLA.TAY LDA sdat,Y:STA tm
p:LDA sdat+1,Y:STA tmp+1
1780LDA MX%,X-BMIstop
1790LDA#0.STAapc. aloop
1800LDA#0.STAbpc:.bloop
1810JSR calca
1820.pblock LDA&434.STAapc:LDA&435:STAa
pc+1:LDY#0:.plop LDA(tmp),Y:EOR(apc),Y.S
TA(apc),Y:INY:CPY#8.BNE plop:LDAtmp:CLC:
ADC#8-STAtmp.LDAtmp+1:ADC#0-STAtmp+1
1830INCbpc:LDAbpc:CMP DY%,X:BMIbloop
1840INCapc:LDAapc:CMP DX%,X-BMIaloop
1850 stop RTS
1860.calca
1870LDA#0:STA bladr:LDA#&58:STAbladr+1
1880LDA MX%,X:CLC:ADC apc.CLC.ROLA.ROLA
:ROLA
1890CLC-ROLbladr:STAbladr:LDA bladr+1:A
DC#0-STA bladr+1
1900LDA MY%,X:CLC:ADC bpc
1910TAY
1920 agan
1930LDAbladr:CLC:ADC#&40-STAbladr:LDAbl
adr+1 ADC#1 STAbladr+1
1940DEY CPY#0-BNE agan
1950CPX#0.BNEstop
1960LDAbladr-STAcopy:LDAbladr+1:STAcopy
+1
1970RTS
1980 peeks LDY#0
1990LDAcopy:SEC:SBC#16:STAtmp LDA copy+
1:SBC#0:STA tmp+1:LDA(tmp),Y:STA l
2000LDA copy SEC SBC#&50:STA tmp.LDA co
py+1:SBC#1:STA tmp+1.LDA(tmp),Y:CLC.ADCl
-STA l
2010LDAcopy:CLC:ADC#8:STAtmp:LDAcopy+1:
ADC#0.STAtmp+1.LDA(tmp),Y STAr
2020LDAcopy:SEC:SBC#&36:STAtmp.LDAcopy+
1:SBC#1:STAtmp+1:LDA(tmp),Y:CLC:ADCr:STA
r
2030LDAcopy-CLC ADC#&40:STAtmp.LDAcopy+
1:ADC#&1.STAtmp+1:LDA(tmp),Y:STAd
2040LDAcopy-CLC:ADC#&38:STAtmp:LDAcopy+
1:ADC#1:STAtmp+1:LDA(tmp),Y.CLC:ADCd:STA
d
2050LDAcopy:SEC-SBC#&80:STAtmp:LDAcopy+
1.SBC#2.STAtmp+1-LDA(tmp),Y:STAu
2060LDAcopy-SEC+SBC#&C0-STAtmp:LDAcopy+
1:SBC#2 STAtmp+1:LDA(tmp),Y:CLC:ADCu:STA
u
2070RTS
2080.GD JSRs.INC MY%,X:JMPs..GU JSRs DE
C MY%,X.JMPs..GL JSRs-DEC MX%,X:JMPs..GR
 JSRs:INC MX%,X:JMPs
2090.movel LDA MXD%,X:CMP#1:BEQ GR
2100CMP#255-BEQ GL
2110LDA MYD%,X:CMP#1:BEQ GD
2120CMP#255-BEQ GU
2130RTS
2140.chklime
2150LDA MXD%,X:BEQ testy
2160LDA MX%,X:CMP LXL%,X:BEQ rx
2170CMP LXR%,X:BEQ rx:RTS
2180.testy
2190LDA MY%,X:CMP LYU%,X-BEQ ry
2200CMP LYD%,X BEQ ry:RTS
2210.rx ldaMXD%,X:JSRch:staMXD%,X:RTS
2220.ry ldaMYD%,X.JSRch:staMYD%,X.RTS
2230.ch CMP#1-BEQm255:CMP#255:BEQ m1
2240.m255 LDA#255.RTS..m1 LDA#1:RTS
2250.bitms LDA#0-STA &420:LDY#1:.blop
2260 LDA NT%,Y:CMP#255:BEQ not
2270LDA MX%-STAx
2280CMP MY%,Y:BEQ xok
2290INCx-LDAx:CMP MY%,Y-BEQ xok
2300LDA MY%,Y.CLC:ADC DX%,Y:SEC:SBC#1:C
MP MX% BEQxok
2310CMPx.BEQxok
2320 not INY:CPY#11-BNE blop:RTS
2330.xok
2340LDA MY%.STAy-CMP MY%,Y:BEQ yes
2350INCy:LDAy:CMP MY%,Y:BEQyes
2360INCy:LDAy:CMP MY%,Y-BEQyes
2370LDA MY%,Y:CLC:ADC DY%,Y:SEC:SBC#1:C
MP MY%:BEQ yes
2380CMPy:BEQyes
2390JMPnot
2400 yes LDA#255:STA &420:RTS
2410.scr
2420 LDA&450:STA tmp:CLC:ADC#320 MOD256
:STAapc
2430 LDA&451:STA tmp+1:ADC#320 DIV256:S
TAapc+1
2440LDY#0
2450.alp
2460 LDA(tmp),Y:JSR pout
2470 LDA#1:CLC:ADC tmp:STAtmp:LDA#0:ADC
tmp+1:STA tmp+1
2480 LDAtmp:CMPapc:BNEalp
2490 LDAtmp+1.CMP apc+1-BNE alp
2500RTS
2510.pout TAX:BEQzero
2520CMP#224.BCC les
2530LDA#17:JSR&FFEE:LDA fc-224,X:JSR&FF
EE
2540LDA#17:JSR&FFEE.LDA bc-224,X:JSR&FF
EE
2550.ord TXA:JMP&FFEE
2560 les TAX.LDA#17.JSR&FFEE:LDA#131:JS
R&FFEE.LDA#17:JSR&FFEE:LDA#0:JSR&FFEE:TX
A:JSR&FFEE:LDA#17:JSR&FFEE;LDA#128-JMP&F
FEE
2570 zero LDA#17-JSR&FFEE LDA#128 JSR&F
FEE:LDA#32-JMP&FFEE
2580 fc EQUB1:EQUB2:EQUB3:EQUB0-EQUB0:E
QUB3:EQUB2
2590.ba EQUB130 EQUB131.EQUB129:EQUB0-E
QUB0-EQUB129.EQUB129
2600.rest LDX#1
2610LDA NT%,X:CMP#255:BEQnosho
2620.olop DEC SC%,X
2630LDA SC%,X:BNE nosho
2640JSRmovel:JSRchklime:LDA SP%,X:STA
SC%,X
```

Turbo-Loader

Simon T Goodwin

Turbo Loader performs two tasks it allows programs to be loaded and saved at much higher speeds then is normally possible and it allows the user to protect programs from being copied easily. The increase in speed is achieved by first saving files in one block rather than in multiple blocks and secondly by using different baud rate settings. Programs saved using this system cannot easily be copied because I have created a unique header format which cannot be read by Amstrad Basic. Five commands are added to Amstrad Basic to perform this task

TSAVE filename start address length execute address

This saves a chunk of memory under the specified filename. If the code has an execute address then include that address in the command. If it doesn't then the execute address should be specified as zero. The filename must be specified and can be up to 20 characters long. The start address for a basic program is normally 368 (note that basic programs can't be executed directly)

TLOAD

This loads (and executes if neccessary) the first file it finds on the tape. If all is well the message *LOADING – [filename]* should appear. If it doesn't then rewind the tape and try again, perhaps at a different volume setting

SPEED baud rate

This sets the baud rate to zero one or two. Settings zero and one are the usual speed write values. Setting two is a new tape speed (3000 baud) and should not be used for valuable data or on poor quality tapes. As an example of the speed of the 3000 baud rate a 42K file loads in 1 minute 56 seconds

MESSAGES [0=off 1=on]

Enables or disables tape loading/saving messages. This is particularly useful for loading or saving screen data

HELP

Lists the various commands and their syntax

When *TSAVE* or *TLOAD* commands are issued the border will flash momentarily to show that the system is functioning properly. The border will also flash in between the header and main data blocks. If a command is typed wrongly an RSX error command will be displayed. If a file is not read correctly a tape loading error will be displayed. When loading a program the MIC plug should be removed and the EAR plug should be removed when saving programs

If readers do not want to type in the machine code listing send £2 (tape) or £5 (disc) to 41 Fountains Drive, Acklam, Middlesbrough, Cleveland TS5 7LW

```
10 REM ------------------
20 REM    TURBO-LOADING SYSTEM
30 REM     by ST Goodwin 1987
40 REM ------------------
50 REM
60 count=0
70 MEMORY 41499
80 FOR n=41500 TO 42491
90 READ a$
100 POKE n,VAL("&"+a$)
110 count=count+VAL("&"+a$)
120 NEXT
130 IF count<>99757 THEN PRINT
    "Error in data
    statements":END
140 CALL 41500:REM
    INITIALISE COMMANDS
150 END
160 DATA 21,1B,A5,01,1F,A5,C9,D2
170 DATA BC,CD,E3,A3,21,42,A4,06
180 DATA 12,CD,DB,A3,CD,E3,A3,CD
190 DATA D3,A4,C9,FE,01,C2,4B,A2
200 DATA DD,7E,00,FE,00,28,1A,FE
210 DATA 01,28,1F,FE,02,28,24,CD
220 DATA E3,A3,21,38,A4,06,0A,CD
230 DATA DB,A3,CD,E3,A3,CD,D3,A4
240 DATA C9,21,40,01,3E,19,CD,6B
250 DATA BC,C9,21,A7,00,3E,32,CD
260 DATA 6B,BC,C9,21,6E,00,3E,0F
270 DATA CD,6B,BC,C9,FE,01,C2,4B
280 DATA A2,DD,7E,00,FE,01,28,07
290 DATA FE,00,28,09,C3,4B,A2,3E
300 DATA 01,32,1A,A5,C9,3E,00,32
310 DATA 1A,A5,C9,CD,E3,A3,21,50
320 DATA A4,06,11,CD,DB,A3,CD,E3
330 DATA A3,06,14,CD,DB,A3,CD,E3
340 DATA A3,CD,E3,A3,21,82,A4,06
350 DATA 14,CD,DB,A3,CD,E3,A3,CD
360 DATA E3,A3,06,2B,CD,DB,A3,CD
370 DATA E3,A3,06,17,CD,DB,A3,CD
380 DATA E3,A3,06,1C,CD,DB,A3,CD
390 DATA E3,A3,06,17,CD,DB,A3,CD
400 DATA E3,A3,CD,E3,A3,C9,FE,04
410 DATA C2,4B,A2,CD,EE,A3,21,0A
420 DATA A4,06,1E,3E,00,77,10,FD
430 DATA DD,6E,06,DD,66,07,7E,32
440 DATA 29,A4,FE,00,CA,4B,A2,FE
450 DATA 14,38,03,C2,4B,A2,23,7E
460 DATA 5F,73,7E,57,EB,11,10,A4
470 DATA 01,14,00,ED,B0,3A,1A,A5
480 DATA FE,00,28,2B,21,50,A4,06
490 DATA 11,CD,DB,A3,CD,E3,A3,06
500 DATA 14,CD,DB,A3,CD,E3,A3,CD
510 DATA E3,A3,06,09,21,25,A4,CD
520 DATA DB,A3,3A,24,A4,47,21,10
530 DATA A4,CD,DB,A3,CD,E3,A3,DD
540 DATA 6E,04,DD,66,05,DD,5E,02
550 DATA DD,56,03,DD,4E,00,DD,46
560 DATA 01,22,0A,A4,ED,53,0C,A4
570 DATA ED,43,0E,A4,21,DA,A4,11
580 DATA 1E,00,3E,16,CD,9E,BC,D2
590 DATA 4B,A2,2A,0A,A4,ED,5B,0C
600 DATA A4,3E,16,CD,9E,BC,D2,4B
610 DATA A2,CD,D3,A4,C9,FE,00,C2
620 DATA 4B,A2,CD,EE,A3,21,0A,A4
630 DATA 06,1E,3E,00,77,10,FD,21
640 DATA DA,A4,11,1E,00,3E,16,CD
650 DATA A1,BC,D2,25,A2,3A,1A,A5
660 DATA FE,00,28,12,21,2E,A4,06
670 DATA 0A,CD,DB,A3,21,10,A4,3A
680 DATA 24,A4,47,CD,DB,A3,2A,0A
690 DATA A4,ED,5B,0C,A4,3E,16,CD
700 DATA A1,BC,D2,25,A2,CD,D3,A4
710 DATA 2A,0E,A4,7C,B5,C8,E9,7E
720 DATA CD,5A,BB,23,10,F9,C9,3E
730 DATA 00,CD,5A,BB,3E,0A,CD,5A
740 DATA BB,C9,21,54,A4,C3,E3,BC
750 DATA 06,7F,0E,1D,ED,5F,E6,11
760 DATA F6,40,ED,49,ED,79,C9,21
770 DATA 54,A4,CD,E6,BC,C9,00,00
780 DATA 00,00,00,00,00,00,00,00
790 DATA 00,00,00,00,00,00,00,00
800 DATA 00,00,00,00,00,00,00,00
810 DATA 00,53,41,56,49,4E,47,20
820 DATA 3A,20,4C,4F,41,44,49,4E
830 DATA 47,20,3A,20,52,53,58,20
840 DATA 45,52,52,4F,52,21,54,41
850 DATA 50,45,20,4C,4F,41,44,49
860 DATA 4E,47,20,45,52,52,4F,52
870 DATA 00,00,00,00,00,81,F4,A3
880 DATA 00,54,53,52,42,4F,20,4C
890 DATA 4F,41,44,45,52,20,76,31
900 DATA 2E,30,53,69,6D,6F,6E,2E
910 DATA 54,2E,47,6F,6F,64,77,69
920 DATA 6E,20,31,39,38,37,54,68
930 DATA 65,20,63,6F,6D,6D,61,6E
940 DATA 64,73,20,61,72,65,20,3A
950 DATA 20,20,7C,54,53,41,56,45
960 DATA 2C,22,66,69,6C,65,6E,61
970 DATA 6D,65,22,2C,73,74,61,72
980 DATA 74,20,61,64,64,72,65,73
990 DATA 73,2C,6C,65,6E,67,74,68
1000 DATA 2C,65,78,65,63,7C,54,4C
1010 DATA 4F,41,44,20,20,5B,6E,6F
1020 DATA 20,70,61,72,61,6D,65,74
1030 DATA 65,72,73,5D,7C,53,50,45
1040 DATA 45,44,2C,74,61,70,65,20
1050 DATA 73,70,65,65,64,20,5B,30
1060 DATA 2C,31,2C,6F,72,20,32,5D
1070 DATA 7C,4D,45,53,53,41,47,45
1080 DATA 53,2C,20,5B,31,3D,6F,6E
1090 DATA 2C,30,3D,6F,66,66,5D,2B
1100 DATA 63,79,53,54,47,20,40,61
1110 DATA 72,63,68,20,38,37,01,00
1120 DATA 00,00,00,30,A5,C3,E2,A2
1130 DATA C3,29,A3,C3,37,A2,C3,97
1140 DATA A2,C3,78,A2,54,53,41,56
1150 DATA C5,54,4C,4F,41,C4,53,50
1160 DATA 45,45,C4,48,45,4C,D0,4D
1170 DATA 45,53,53,41,47,45,D3,48
1180 DATA 65,6C,6C,6F,20,48,61,63
1190 DATA 6B,65,72,21,21,20,53,6F
1200 DATA 20,79,6F,75,20,74,68,69
1210 DATA 6E,6B,20,79,6F,75,20,63
1220 DATA 61,6E,20,68,61,63,6B,20
1230 DATA 74,68,69,73,20,64,6F,20
1240 DATA 79,6F,75,3F,3F,4C,65,74
1250 DATA 20,6D,65,20,74,65,6C,6C
1260 DATA 20,79,6F,75,20,6E,6F,72
1270 DATA 2E,26,2E,79,6F,75,20,68
1280 DATA 61,76,65,6E,27,74,20,67
1290 DATA 6F,74,20,61,20,63,68,61
1300 DATA 6E,63,65,2E,49,66,20,79
1310 DATA 6F,75,20,63,61,6E,20,6F
1320 DATA 66,66,65,72,20,61,6E,79
1330 DATA 20,69,6D,70,72,6F,76,65
1340 DATA 6D,65,6E,74,73,20,74,6F
1350 DATA 20,74,68,65,20,70,72,6F
1360 DATA 67,20,77,72,69,74,65,20
1370 DATA 61,6E,64,20,74,65,6C,6C
1380 DATA 20,6D,65,2E,00,00,00,00
1390 DATA 00,00,00,00,00,00,00,00
```


VIP PROFESSIONAL
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Probably the most impressive program to have been released so far for the Atari ST range VIP Professional is an extremely easy to use integrated spreadsheet database and graphics program which is identical both in features and commands to Lotus 1-2-3™ To give you the best program possible on your Atari ST VIP Professional integrates the three essential applications of Lotus 1-2-3™ with the smart face of GEM The same spreadsheet analysis information management and extraordinary business graphics are all combined in one easy to learn affordable package What's more VIP Professional not only has all the features of 1-2-3™ you can also type the same commands to do the same things Or better still you can use a mouse to make it even simpler! VIP requires only one disk drive to operate and also works with a hard disk drive It is compatible with both monochrome and colour systems Probably the most surprising feature of VIP Professional is not its total compatibility with Lotus 1-2-3™ nor its ease of use with the GEM environment but its price Lotus 1-2-3™ for the IBM PC AT costs £395 (+VAT=£454.25) whereas VIP Professional for the Atari ST range of computers is a mere £199 (+VAT=£228.85) That's nearly HALF PRICE!
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I am interested in the Atari ST
I already own an Atari ST

Starscroll

Andrew Partridge

The following C64 routine will generate an eight sprite starfield which will scroll from right to left under interrupt

```
10 SE = 49152  EE = 49268
20
30 FORI = SE TO EE   READ A   POKE I , A   NEXT
40
50000 DATA 169,255,141,021,208,169,060,160,000,153,000,209,200,170
50001 DATA 232,232,232,232,232,232,232,232,136,192,014,208,238,120
50002 DATA 169,064,141,020,003,169,192,141,021,003,059,169,012,160
50003 DATA 000,153,245,007,200,192,008,208,248,162,001,141,064,003
50004 DATA 096,000,000,000,000,000,000,000,206,000,208,206,002,206
50005 DATA 206,002,208,206,004,208,206,004,208,206,004,208,206,006
50006 DATA 208,206,006,208,206,008,208,206,008,208,206,008,209,206
50007 DATA 010,208,206,010,208,206,012,208,206,012,205,206,014,200
50008 DATA 206,012,208,206,000,205,206,002,208,206,002,205,206,040
50009 DATA 205,206,043,208,206,046,209,076,049,234,000

READY.
```

Paddle Read

Adam Wright

This short machine code routine for the Commodore 64 will read the position of the paddle ports 0–3

The syntax of the command is SYS *49152 paddle no variable to return position in*

```
0 REM PADDLE READER
1 DATA 32,253,174,32,138,173,32,247
2 DATA 183,165,20,201,4,144,3,76
3 DATA 72,178,168,162,64,41,2,240
4 DATA 2,162,128,120,142,0,220,162
5 DATA 128,202,16,253,152,41,1,120
6 DATA 188,25,212,88,169,0,32,145
7 DATA 179,32,253,174,32,139,176,166
8 DATA 13,240,3,76,72,178,170,32
9 DATA 212,187,96
10 PR=49152:CK=0:FOR A=PR TO PR+66
20 READ D:POKE A,D:CK=CK+D:NEXT A
30 IF CK<>7992 THEN PRINT "ERROR":STOP
40 SYS PR,0,P:PRINT P

READY.
```

Screen Collapse

Simon T Goodwin

This routine for any Amstrad CPC provides a spectacular way of clearing the screen. It can be used in all screen modes and is executed by typing *Call 42400*. Lines 90–110 give a simple demonstration of the routine

```
10 REM ------------------------------
20 REM  SCREEN COLLAPSE by ST Goodwin
30 REM ------------------------------
40 REM
50 MEMORY 42399
60 FOR n=42400 TO 42463
70 READ a$:POKE n,VAL("&"+a$)
80 NEXT
90 MODE 1:INK 3,6:PAPER 3:CLS
100 FOR n=1 TO 25:PRINT "Collapsing screen":NEXT
110 CALL 42400
120 DATA 06.28,78,32,D0,A5,C5,06
130 DATA OF,C0,19,BD,10.F8.3A,D0
140 DATA A5,57,01,00,BC,OE,01,ED
150 DATA 49,04,ED,51,05,C1,10,E2
160 DATA CD,6C,88,01,00,BC,16,28
170 DATA OE,01,ED,49,04,ED,51,C9
180 DATA 00,00,00,00,00,00,00,00
190 DATA 00,00,00,00,00,00,00,00
```



CHOLO
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Switching the DIP

Steve Bashforth of Grimsby, S Humberside writes

Q I have recently bought an Epson P-40 printer. I was supplied with an interface that has printed on it: QL Centronics Printer Interface

My problem is that all of the printer commands work with the exception of COPY, which sort of works. What happens is that it will print a line of the screen, and then print a line of spaces, and so on. I was wondering if it would be possible to print the screen using the LPRINT command.

A This looks like a problem with the DIP switch settings or the cable. What appears to be happening in the example you sent me (not reproduced here) is that the computer is sending an extra unnecessary line feed at the end of each line.

Epson printers, in fact any printer with a Centronics interface, uses one of two methods to get to the start of the next line. One of these is to send a carriage return (ASCII 13) and a line feed (ASCII 10) to the printer telling it to return to the start column and then move the paper up one position.

The other method is to send a carriage return only leaving it up to the printer to insert the line feed. What appears to be happening in your case is that the first method is being used whether the printer expects the second, hence the extra line feed.

The solution is to alter the DIP (Dual Inline Package) switches which change the way in which the computer interprets control codes sent to it. You will have to consult your printer manual to find out which switch needs to be altered. It is usually labelled something along the lines of 'Line feed must be from host'. Just put this switch in the opposite position.

If the above solution does not work then the cable is probably causing the problem. In the Centronics specification there is one connection entitled Auto line feed XT (line 14 on the printer socket).

If this is set high then a line feed is inserted by the printer on receipt of a carriage return. What you need to do is disconnect this line and then reset the DIP switch if necessary. The Auto line feed XT effectively overrides the switch setting and is redundant for most computer systems.

Poking on Commodore

Peter Lam of Rochdale, Lancs writes

Q Please could you tell me the poke to disable the Run/ Stop Restore and prevent listing on the Commodore Pet?

A For the Commodore 64 there are a couple of methods of disabling Run /Stop Restore. To get the same thing to work on the Pet will require you getting hold of a memory map that shows the various vectors, in particular the Stop vector. This is at location 808 on the 64 and the following poke disables the R/S Restore and mucks up the list command

```
POKE 808 234     Disable
POKE 808 237     Enable
```

The only drawback is that the tape operations may be mussed up but if you use this poke after the program is loaded then there should be no problems.

Running in circles

G Martin of Royton, Lancs writes

Q This may sound a little trivial, but I was wondering if you could tell me how to draw circles on my Amstrad computer.

A The easiest way to draw circles is to use the SIN and COS functions provided in Basic. These take values from 0 to 2*π and convert them in the appropriate values for drawing circles and ellipses. In the following program, the variables PX and PY define the centre of the circle, and the variables SPX and SPY define the aspect ratio and size. To flatten the circle, reduce SPX and to widen it, increase SPY. For perfect circles SPX and SPY should be equal.

Line 50 is used to move the cursor to the start position, in this case the top centre of the circle. This position is defined when the angle T = 0 and since SIN(0) = 0 and COS(0) = 1 it is MOVE PX SPY+PY. Changing the step amount in line 60 makes the circle finer or coarser. It also causes it to be drawn faster or slower. The best value for this depends on how fast you want your circle drawn traded off against the quality of the circle.

```
10 PX=100
20 PY=100
30 SPX=50
40 SPY=50
50 MOVE PX SPY+PY
60 FOR T=0 TO 2*PI STEP .1
70 DRAW
   SIN(T)*SPX+PX COS(T)*SPY+PY
80 NEXT
```

Sorting out the database

H Stevens of Hull, North Humberside writes

Q I am writing a database for my computer and would like to sort the information in order. I know that sorting should be easy on a computer. The trouble is the only ways I can think of doing it are quite slow. Are there other methods of sorting that are faster?

A There are three fairly simple sorts that can easily be implemented on a micro. These are the bubble sort, the Shell Metzner sort and the pick or exchange sort. Of these the most efficient for long random lists is the Shell Metzner (named after its authors).

For lists that are almost in order, the bubble sort is usually the best. If, however, you only want to find, say, the top 10 items in the list, ignoring the others, the pick sort is best. The following listings should be adaptable.

```
Shell Metzner sort
SM
L1%=L%
SM1
L1%=INT(L1%/2)
IF L1%=0 THEN fin
FOR L2%=0 TO L1%-1
SM2
SFG%=0
P1%=L2% P2%=L2%+L1%
SM3
IF N%(P1%)<N%(P2%) THEN
SWAP N%(P1%) N%(P2%) SFG%=1"
P1%=P2% P2%=P2%+L1%
IF P2%<I%+1 THEN SM3
IF SFG%<>0 THEN SM2
NEXT
GOTO SM1
fin
RETURN

BUBBLE SORT
BSORT
SFG%=0
FOR T%=0 TO L%-1
IF N%(T%)<N%(T%+1) THEN
SWAP N%(T%) N%(T%+1) SFG%=1
NEXT
IF SFG%=1 THEN BSORT
RETURN

Pick sort Exchange sort
PSORT
FOR T%=0 TO L%-1
P%=L%
FOR S%=T% TO L%
IF N%(P%)<N%(S%) THEN P%=S%
NEXT
IF P%<>T% THEN SWAP N%
(P%) N%(T%)
NEXT
RETURN

Ends
```

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2H 7PP

to work on any computer

All are sorting the array N% whose length is in L%. The programs were written in Microsoft Basic (on a Mac). Just insert line numbers and change references to the labels (anything ending in a colon) to be line numbers.

The Dynamic Debugging Tool

Alun Jones of Buckley, North Wales writes

Q I have an Amstrad CPC 664 and have been experimenting with CP/M. What I would like to know is what is DDT?

A DDT or the Dynamic Debugging Tool is a programming utility that allows programs to be studied, altered and created. DDT, unlike most other CP/M programs, is not loaded at $100. It is loaded at the top of the memory so that other programs can be loaded further down and debugged.

DDT has the following commands:

Assss The assembler function allows programs to be typed in in mnemonic form. Simply type A followed by the address (in hex) where the code is to be assembled. See example below.

```
A100
100 MVI C 2
102 MVI E 41
104 call 5
107 ret
108
```

To get out of the assembler just press return at the next line. The assembler uses 8080 mnemonics even though the 664 is a Z80 machine.

Dssss eeee D is followed by the starting address (in hex) and dumps 256 bytes of memory in hex and ASCII to the screen. If you put a second address following the first, only the section specified is dumped.

Fssss eeee ww Fills the section of memory from ssss to eeee with the byte specified in ww.

Gssss[bbbb[bbbb[bbbb]]] Jump to the address specified in ssss and start executing code from there. G is also used to set breakpoints within a program where execution will stop and control is returned to DDT. The address of the breakpoint is at bbbb and if you need more than one just tag them on the end. G0 returns control back to CP/M leaving DDT.

Hnnnn mmmm Returns the sum and difference of mmmm and nnnn in hexadecimal.

Innnnnnn ext Used to insert a file name in the file control block (FCB) starting at location 5C. The program can be loaded with the R command.

Lssss[eeee] Disassembles code starting from ssss. eeee is an option and address which, if not used, assumes 12 lines of instructions. If a start address is not specified L starts from the correct address.

Mssss eeee dddd Move a section of memory starting at ssss and ending at eeee to the location starting at dddd.

R[oooo] Reads a file into memory using the name specified using the I command. An option is to load the program offset by oooo bytes.

Sssss Allows the memory starting at ssss to be edited as numbers. Pressing return moves to the next address, typing in a new value inserts this value at the location specified, a full stop is used to terminate the command.

Tnnnn T is used to trace the execution of a program for nnnn instructions. The contents of the internal registers are printed to the screen in the following way:

Flags A BC DE HL SP PC disassembled instruction code

The flags are represented by C=carry Z=zero m=minus E=even parity I=integer carry.

Unnnn This performs the same as Trace except that there is no output. It is useful when you want to skip over a nnnn instructions before starting to trace the program.

Xr The processor registers can be examined and edited by using X followed by the register you want to see. Typing in a new value sets the register to that value. r the register is specified by the following letters:

A	A register	0–FF
B	BC registers	0–FFFF
C	DE registers	0–FFFF
H	HL registers	0–FFFF
S	Stack pointer	0–FFFF
P	Prog counter	0–FFFF
M	Minus flag	0–1
C	Carry flag	0–1
Z	Zero flag	0–1
E	Parity flag	0–1
I	Aux carry	0–1

DDT is loaded by typing DDT at the prompt A>. If you follow DDT with a filename (A>DDT FILE.EXT) then the file will be loaded into along with DDT.

No cartridge required

Robert Platt of Kinson, Bournemouth, Dorset writes

Q With reference to your reply to the letter from M Hopkins (Popular 3–9 April) the TI 99/4A does not need any cartridge to load the operating system as it is built in. As to the problem of the black screen, it would appear that there is something wrong with the internal workings of the computer.

A My thanks also go to A V Vere of Leamington Spa for informing me that no cartridge is needed for Basic. He also says that on boot up, the display shows all the available colours in the top strip, the bottom strip contains the TI logo, Texas Inst. Home Comp., press any key, and 1981 Texas Instruments on a Grey/Green background.

Wedge in the 64

Mike Davis of Norwich, Norfolk writes

Q I have been using my Commodore 64 for some years now and have just become interested in machine code programming. I have an assembler and would like to add extensions to Basic. Could you explain how this is done?

A The idea you refer to is known as Wedging on the 64. What you do is intercept characters read in and check them against new commands. The simplest way of doing this is to make all of your commands start with an unused letter such as !. Thus, you only need to check for this, anything else is either a valid command or a mistake.

To insert a wedge, you need to redirect the CHRGET routine to your own. This is done in the wedge setup at the start of the program. Once you have the wedge installed, you need to imitate CHRGET as far as the current character pointer is concerned ($/A/B) and check the character being read. If this is not your wedge character then jump to the normal Basic handler. If it is your character then check next char and perform the specific your routine and then return to the normal Basic handler. The following program demonstrates how this is done.

```
START LDA #$4C       Jump command
      STA $73        To address as follows
      LDA #<WEDGE    Get address of wedge
      STA $74        to the next
      LDA #>WEDGE    Locations $73/74
      STA $75        In low hi format
      RTS            To install wedge SYS START
WEDGE JSR GCHAR      Get the character
      CMP #33        Is it a !
      BEQ DA
NIET  JMP $79        No er don t use wedge
DA    LDA $9D        Are we in direct mode?
      BNE NIET       Use within prog only
      JSR GCHAR
      CMP #65        !A command?
      BEQ CMA        Is a command A
      CMP #66        !B command?
      BNE NIET       Neither
CMA   TXA            Save all regs
      PHA
      TYA
      PHA
      INC 53280      Execute !A command Border flash
      PLA
      TAY
      PLA
      TAX
      JMP $73        Continue Basic
CMB   TXA            Save all regs
      PHA
      TYA
      PHA
      INC 53281      Execute !B command BG flash
      PLA
      TAY
      PLA
      TAX
      JMP $73        Continue Basic
GCHAR INC $7A        Move char pointer
      BNE SKP        Two byte inc
      INC $7B
      JSR $79        Get character
      RTS
END
```

Budget packages for budget synths

Sound creation on budget-oriented synthesisers should logically be available at a budget price. Here Mark Jenkins reviews Soundbits *Voice Master*, which serves just that purpose

This week we're looking at the first release from a new UK software company called Soundbits. It has just signed an exclusive distribution deal with Syndromic Music, which already handles Hybrid Arts lines which include the basic *EZ-Track* composer, the professional *SyncTrack/SMPTETrack* composers, the *CZ-Android* editor for the Casio synths and the *DX-Android* editor for the Yamaha DX7 synth.

Soundbits, however, has started off by addressing a problem not touched upon by Hybrid as yet, and that is sound creation on the more budget-oriented Yamaha DX21, DX27 and DX100 synths. There are other editors for these machines – I've recently looked at one from Dr T which also copes with the FB-01 synth module and which costs £120 – but the Soundbits package *Voice Master* costs only £49.95.

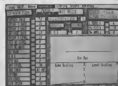
The display on the Soundbits package is clear and straightforward, using the Gem graphics environment in a simple, chunky manner. The main screen simply lists all the parameters available on the synth, including all the possible algorithms (arrangements of sine wave oscillators), all the envelope stages and speeds, all the LFO parameters for vibrato and other special effects.

It's a good display, not especially illuminating, but at least the package will immediately transmit any changes you make to the connected synth for you to hear their effect.

If you choose Graphic from the top-of the screen menus you're given a graphic display of the current envelope and of the keyboard scaling functions. These give a good idea of the overall "shape" of the sound and although you can't drag sections of the envelope around as on the Dr T package, you can at least see the effects of the changes you've made in a very immediate form.

The envelope displays really come into their own when you use either of the two Randomiser functions. Randomise Option 1 seems to change minor details in the sound, usually keeping the basic algorithm (arrangement of sine wave generators) the same, whereas Randomise 2 is likely to change almost any parameter.

Obviously you're presented with a mixture of very exciting sounds, some more musical than others, and some which need a little tweaking – once you've got to know your synth quite well this isn't a problem, although it's a pity that the package doesn't offer some of the "masking" function of the Dr T which make certain parameters immune from randomisation.



Voice Master from Soundbits: better value for money

The only other main display is the Librarian page, which shows two banks of 32 sounds of which only the first 24 will be relevant to the DX100. This page allows you to transfer single sounds or whole banks between synth and computer, and if you drag a sound down to the Transfer Window it will be transferred to the Edit section for you to work on when you hit Exit. All the sounds are named as on the synths themselves and the relevant name goes along with the sound into the Workbank when you use Transfer.

You can initialise a voice to a basic sine wave whine and of course can alter any parameter using the mouse, within the limitations of the settings available on the synth itself. Like the other editors we've looked at, *Voice Master* does nothing you couldn't do with the synth alone and a bit of patience, but it does it a hundred times quicker and then stores the results to nice cheap, reliable floppy discs.

Overall *Voice Master* does its job simply and well. It's not too expensive either, and versions for the powerful TX81Z synth module and Roland Alpha Juno 1 and 2 synths (and presumably their expander version) are on the way.

Just time for a couple of quick letters. Mark Sampson of Strathclyde has a 48K Spectrum with a Micon Midi interface and has just bought a CZ101. He asks, do you need separate software packages to create and store sounds and to edit sequences?

The answer here is yes, simply because every synth alters and stores sounds in a different format and so it's impractical to write a sequencer package which also happens to have the editing and storage facilities for any synth you're likely to own. XRI, the manufacturers of the Micon interface, do very effective editing and sequencer packages.

He also wants to know where you get a CZ101 for £230, since he paid £295 for his? Well, you look in the second hand columns of *Music Technology* or *Melody Maker*, go and visit your intended victim (a bit difficult if none of them lives in the direction of Strathclyde, admittedly) and then you can even try to beat them down a bit.

John Magee of Barry has a Toshiba MU109 music system, which he describes as "brilliant", and which he's used to play a few "one-finger" tunes. His problem is that he can't read music and that he can't play with both hands without the fingers copying each other.

There are several good tutor books about which will give you very simple exercises to begin to make your left and right hands a bit more independent; any music shop will show you a selection. The other alternative is to have a few piano lessons until you gain enough confidence to go out on your own.

Lastly, you can nip into your local WH Smith's and look for a cassette/magazine series called *How to Play Electric Keyboards* or something similar. It's an easy-going partwork with musical examples which is exactly suited to someone who wants a basic keyboard facility without having to turn into Rick Wakeman overnight.

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12–13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape or disc.

Signed, sealed, delivered...for free

Mention electronic mail, Email for short, and most people think of telex machines clattering away Whilst Email services do provide low-cost access to the telex network, more and more companies are linking into Email, owing to its larger character set, and more modern services

Here, Steve Gold looks at one of brand leader Telecom Gold's competitors and assesses its facilities against BT's service

Whilst the brand leader in Email is Telecom Gold with its 60 000 plus subscribers there are as with any competitive market other alternative Email service vendors all keen for your business

Message Handling System (MHS for short) is currently being beta tested by several Email companies prior to its introduction this summer Once implemented, MHS will allow a user on one Email system to send mail to users on other Email systems MHS will in many ways remove the barriers between the systems and its proponents argue make for a much wider customer base than before quickly attracting the critical mass required for mass sign ups by firms and the public at large

One To One

With currently just over 16 000 subscribers One To One is a wholly owned subsidiary of Pacific Telesis As such it enjoys a healthy investment of capital from its parent company in the US which has resulted in the recent installation of new Tandem Non Stop computers at its London HQ

What advantages does One To One offer over Telecom Gold? During office hours it s marginally cheaper – both on telex and connect time Dial up access is 10 pence per minute as opposed to 11 pence per minute for Gold Off peak access however is priced at the same rate at daytime access

As a plus the first 30 seconds of access to One To One via direct dial or PSS the public data network is free of charge Normal charges only accrue once the free time is up on each call This time allows subscribers to check their mailbox as frequently as they wish with no extra charges A radiopaging option is available for express messages

Another plus in One To One s favour is means of access Like Telecom Gold One To One is accessible via the PSS – Packet Switch Stream – which is available on local call access to much of the population Direct dial access is available at the same speeds as PSS – 300/300 1200/75 and 1200/1200 baud

Unlike Gold however a variety of dial up ports are available on London Phone numbers ranging from viewdate format (Prestel) ... Cellular (1200 baud) and 300/600 baud textlite Access can also be achieved via a standard telex terminal from almost anywhere in the world

For those with with more mobile requirements One To One is also available on local access in North America via the Telenet System – at no extra charge – an added bonus for firms and/or individuals requiring cheap communication facilities between the US and UK

As one might expect the usual Email facilities are available on One To One – text based mail to other mailboxes telex bureau service (incoming and outgoing) radiopaging on receipt of Email etc

Additional services

Additionally two other mail services are provided by One To One The first – Priority Letter – allows subscribers to input a letter electronically via their terminal and for 55 pence plus postage have their letter printed out at One To One s London HQ for posting first class/airmail to anywhere in the world

Whilst this may appear a superfluous service it does allow non-provincial subscribers to give their hardcopy mail a leg up to international and certain UK destinations Mail sent via priority letter service invariably arrives the next day (excluding Sundays) in London when posted during office hours and can prove useful if you have no letters or stamps to get that last minute letter off in the night s post

The second additional service that One To One provides is called Courier Letter For the sum of £12 00 per consignment the firm will deliver a hardcopy letter to any London destination within two and to several of the provinces and their localities within four business hours In some ways the courier mail option replaces the old telegram service which was superseded by the Telemessage overnight service – which is what the Post Office s first class mail should be able to do anyway

Gateway access

One To One offers gateway access to other online databases including its own free online bulletin board called One To One World and Advance Information a company and online credit checking databases The

continued on page 48 ▶

◀ continued from page 47

Al database costs £1 25 a minute to access compared with £2 00 a minute charged by Telecom Gold for its Jordanwatch service

Such charges may appear high to the average user but compared to the cost of searching through the library for company information, a two minute search for company records etc works out quite economically

Like Telecom Gold One To One has an online directory and a noticeboard facility with several options covering a plethora of subjects via a tree-like category structure

> *"The first 30 seconds of access to One on One, via direct dial or PSS, the public data network, is free of charge"*

Messages may be left and read at will in a manner reminiscent of certain bulletin boards I have been on to Hardly surprising in view of the fact that the 121 World noticeboard was written by a BBS user

Storage Charges

Regular users of Telecom Gold will be aware that even if they have no storage blocks on their mailbox they will charged at least 20 pence per month for notional storage The storage charges increase in direct proportion to the text stored on a Gold mailbox

One To One on the other hand does not charge for storage and whilst its mail storage facilities are not as comprehensive as Telecom Gold s they are more than adequate for most users Under the new Tandem computer system the service is running on two distinct file areas – New Mail and Old Mail are created for each subscriber

New Mail as the name implies is for mail which has not yet been read If mail is not read within 30 days then the service will print out the text and deliver it hardcopy via priority letter This compares with the Telecom Gold system of automatically storing (and charging for) mail more than 30 days old

Old Mail is that mail which having been read remains in your box if not deleted Once old mail is more than four days old it is deleted by the system to minimise mail storage

User Support

Most Telecom Gold subscribers have access to varying levels of support Some, like MicroLink subscribers have access to a telephone and Email hotline during business hours Others, notably corporate customers may call the Telecom Gold 24 hour hotline in London – a trunk call for most subscribers

One To One s control centre has a telephone hotline service available on a Linkline (0800) number free of charge and is manned 24 hours a day, 365 days a year – even throughout Christmas something even Telecom Gold s hotline shuts down for In addition customers may send Email to the control room and will usually get a reply in a short while no matter what time of day it is

Conclusions

The choice between Telecom Gold and One To One is a little more difficult than it may seem at first glance Currently Telecom Gold offers the advantage of larger customer base but once MHS is implemented this advantage disappears

The 24 hour user support via a free Linkline number does count very strongly in One To One s favour however as does the fact that the first 30 seconds spent online in each call is free

In fact in a recent edition of BBC TV s *Micro Live* One To One s Roger Dean admitted that some subscribers were quick enough to read their mail and log off within this free period thereby minimising their costs considerably

For the majority of Email users however, the free telephone support and free 30 seconds initial online time will positively contribute to a reduction in telephone and Email costs Coupled with minimum billing of £5 00 per month and One To One begins to look very attractive

Further details from One To One Scorpio House 102 Sydney Street Chelsea London SW3 6NL 01 351 2468 or LinkLine 0800-800 121

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[illegible]
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Reg [illegible] fee            [illegible]
Note [illegible] special offers are available with
free registration from many dealers)
Minimum monthly [illegible]     [illegible]
Connect time  1st 30 seconds free
              thereafter [illegible] per minute
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TELEX   UK              10p / 500 characters
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        Rest of World   [illegible] characters
Priority letters   [illegible]
                   (plus postage)
Courier letter     [illegible] per consignment
[illegible]
```

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SAMPLE LOGIN FROM 121 VIA PSS
-------- -           ---

NUI?
NONBONE-A212301281

234212301281+COM

WELCOME TO ONE TO ONE
PLEASE ENTER YOUR MAILBOX NUMBER AND YOUR PASSWORD

MAILBOX?  14035001

PASSWORD?

WELCOME 14035001  YOU ARE LOGGED ON AT 12 MAR 87 21 40 GMT

LAST LOGGED ON AT 12 MAR 87 17 38 GMT

Unread messages   0 TELEX   1 E-MAIL
(oldest message  0 days 2 hours)

AT GO AHEAD PROMPT ENTER COMMAND (EG SEND  READ  HELP  LIST)

GA LIST

1 MESSAGES IN NEW MAIL FOLDER
MSG      DATE/TIME RCVD GMT    CHARS  FROM              SUBJECT
1   E-M  THU 12 MAR 87 19 38   28     14035001          Meeting at 9 30am

+++ LIST END

GA read 1

NEW MAIL FOLDER
MSG     REF        DATE/TIME RCVD GMT    CHARS  FROM               DATE/TIME READ
1   E-M 08173408   THU 12 MAR 87 19 38   28     14058001           12 MAR 87 21 40

SUBJECT  Meeting at 9 30am

Dear Steve

Just a note to confirm our meeting next Monday  the 16th at 9 30am  See you
there!

Best wishes  Ralph

NNNN

+++ MESSAGE/S END

GA
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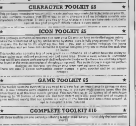
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Program *Conflicts 1* **Type** Strategy **Price** £12.95 (tape) £17.95 (disc) **Supplier** PPS 452 Stoney Stanton Road Coventry CV6 5DG

Compilation of three existing excellent titles from the PSS War gamers Series *Battle of Britain Theatre Europe* and *Tobruk* If you haven t got into computer wargaming yet and are looking for a good excuse this s rt and it s great value too

Program *Army Moves* **Type** Arcade **Price** £8.95 **Supplier** Imagine Software 6 Central Street Manchester M2 5NS

See Spectrum listing for comment

Program *Zap Pak* **Type** Arcade Compilation **Price** £8.95 **Supplier** Players Mercury House Calleva Park Aldermaston Berks RG7 4QW

Two games on a disc for £8.95 *Big Top Barney* and a Centipede clone *Killipede*

Program *League Challenge* **Type** Strategy **Price** £2.99 **Supplier** Atlantis Software 28 Station Road London SE25 5AG

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Program *Chiros* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic 8-10 Paul Street London EC2

See Commodore 64 listing for comment

Program *Strike* **Type** Arcade **Price** £2.99 **Supplier** Mastertronic 8-10 Paul Street London EC2

Program *Advanced OCP Art Studio* **Type** Application **Price** £24.95 (disc only) **Supplier** Rainbird 74 New Oxford Street London WC1

Art package that has everything except the furry dice and go-faster stripes

Program *Thrust II* **Type** Arcade **Price** £1.99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Creditable follow up to the original - well worth the outlay

Program *Gunstar* **Type** Arcade **Price** £1.99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Just before we start, let's clear up any sources of possible confusion Hewson's latest game is called *Gunrunner* but it hasn't got anything to do with gunrunning. The definitive, 'how many missiles can you sell to the Iranians without getting impeached' game has yet to be written The fact is that the main character in this slickest of arcade titles runs along, carrying a gun

So here you are, in beautifully designed monochrome (as all Spectrum games of any class are) running left to right along ten levels of pipes, for reasons too silly to go into here

This network has been infiltrated by baddies, and you simply must zap away at static targets as you find them, avoiding being taken out by moving aliens that are patrolling up and down at a pace and a half

Various bits and pieces can be picked up along the way Poison (a smart bomb), multi-fire, converting your trusty blaster into a weapon of awesome destructive capabilities, a jetpack and a shield which will make you invulnerable for a short space of time

Point One – the action is fast and tricky *Gunrunner* is not going to be mastered in one afternoon Point Two – the graphic design is delightful The mono display looks clean and attractive, and of course, there are no attribute problems

Point Three – Christian Urquhart (the author) whose other works to date include the much underrated Action Reflex, deserves a jolly good round of applause Be prepared to view around the end of May

See Commodore 64 listing for comment

Program *Five Computer Hits* **Type** Compilation **Price** £6.95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

Apple II

Program *Jewels of Darkness* **Type** Adventure Compilation **Price** £19.95 **Supplier** Rainbird Software 74 New Oxford Street London WC1A 1PS

With a view to the vast American market Rainbird convert much of their stuff onto the Apple now This has Level 9 s trilogy of *Snowball Return to Eden* and *Worm in Paradise* Apple adventurers cannot help but be pleased

Atari ST

Program *Mean 18* **Type** Sports Simulation **Price** £29.99 **Supplier** US Gold Units 2/3 Holford Way Holford Birmingham B6 7AX

Now released over here by US Gold we have this on import ages ago and decided that *Leader Board* was by far the more playable game *Mean 18* does have one advantage however you can play on real live courses like the legendary Augusta But do you really need two golf games?

Program *Sub battle Simulator* **Type** Strategy **Price** £24.99 **Supplier** US Gold Unit 2/3 Holford Way Holford Birmingham B6 7AX

Program *Super Directory* **Type** Utility **Price** £24.95 **Supplier** Microdeal Box 68 St Austell Cornwall PL25 4YB

Disc cataloguing utility running under Gem Microdeal say that it s natty How quaint

Atari XL/XE

Program *Zap Pak* **Type** Arcade Compilation **Price** £4.95 **Supplier** Players Mercury House Calleva Park Aldermaston Berks RG7 4QW

Excalibur and *Bubble Trouble* both on one disc for just under a fiver

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Program *Hover Bover* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic 8-10 Paul Street London EC2

continued on page 58 ▶

Hall of Fame

Program *Arkanoid* **Type** Coin op Conversion **Micro** Atari ST (also on 8-bit formats) **Price** £14.95 **Supplier** Imagine Software, 6 Central Street, Manchester M2 5NS

More than just a clone

O[illegible] Weekly Hall of Fame might seem at first a strange choice [illegible] conversion [illegible] a game almost ten years old to boot. Fair enough, but *Arkanoid* was a great game on most of the 8 bit formats. And on the ST it's almost perfect.

I came across *Arkanoid* just after it came out in the arcades and you couldn't help but be impressed. The game design developed and expanded upon the *Breakout* concept in an original and very playable way and the presentation and implementation were both excellent.

The contrast between generations of video machines could not have been brought home more. In the seventies, black and white *Breakout*. In the eighties, a sophisticated variant in colourful high res graphics. The contrast made it even more impressive.

It was a natural for conversion to home computers and the 8 bits, particularly the Commodore 64, have all been very good, but now comes the Atari ST version, converted by Peter Johnson. And it's great.

Barely distinguishable from the coin op apart from the screen layout, it's not just the graphics but the sheer playability and addictiveness that have been carried over on to this format. After a while it dawns on you: *Arkanoid* is more than just a *Breakout* clone.

A ball is put into play up the screen towards an array of bricks, and will rebound back towards you, destroying a brick if it hits one. You must deflect the ball back up the screen using the paddle; if it passes you by, you lose a life.

In *Breakout* all you had to do was destroy all the bricks in the wall and it's the same here, except some bricks must be hit more than once before they disappear, and the array of bricks is usually not just a simple wall shape across the top of the screen. Often the arrays are fiendishly designed, interspersed with indestructible walls, so that mind-boggling concentration and skill is needed to finish the screen.

The other aspect of *Arkanoid* that makes it interesting is the introduction of extra power and obstructive aliens.

When some bricks are destroyed [illegible] capsule that [illegible] the bottom of the screen. If you [illegible] the capsule [illegible] bat type is [illegible] lasers or [illegible] The intelligent use [illegible]

[illegible] moving [illegible] you [illegible] harm you [illegible] are destroyed either [illegible] with the bat or the ball, but the ball can take wicked deflections in the process. Beware.

The way you have to combine simple reflex skills (and sometimes *Arkanoid* is very, very fast indeed) and the thought required to formulate a strategy of which capsules to use to annihilate a particular array makes *Arkanoid* one of the most stimulating games around.

The sheer level of concentration, and the length of time it must be sustained, alone make it a worthy entrant to the Hall of Fame. The take home message is simple. You want a great arcade game? Check this out in detail.

Below left, the Space Invader screen. Below right, you have to clear all the bricks off the screen

Left, the laser weapon option helps you to get through this section more quickly

Hints Box (valid for all versions)

General Tactics

Screen one – get a laser if you can, keep it and blast away

Screen two – open up the right hand side with as little disturbance as possible and hope for an early laser

Screen three – very difficult to master. Imperative you get a catch if possible which will allow you to bounce the ball around the corridors of gold bricks. Laser are useless – as a desperate measure, go for a divide

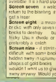
Screen four – get a laser, blast away

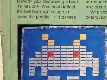
Screen five – the Space Invader. Most bricks need two strikes to kill and very few capsules (no lasers) are available. It's a hard slog

Screen seven – a welcome return to the blasting if you can get a laser

Screen eight – a maze of gold bricks with only seven real bricks to destroy – but it's tricky. Use a divide or preferably a catch

Screen nine – it starts getting difficult with some bricks hidden away in upturned U shapes of gold bricks – you wouldn't want us to give it all away anyway. Would you?













NEW RELEASES

◀ continued from page 56

BBC B

Program *Zap Pak* **Type** Arcade Compilation **Price** £4 95 **Supplier** Players Mercury House Calleva Park Aldermaston Berks RG7 4QW

Two games on a disc from budget label Players

Program *Five Computer Hits* **Type** Compilation **Price** £8 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

Same titles as on the Electron version

Program *Five Star Games* **Type** Compilation **Price** £9 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RG2 7AD

Same titles as on the Electron version of the same only *Psycastria* is out and *Moon Mission* is in

C16/Plus 4

Program *Battle* **Type** Arcade Strategy **Price** £1 99 **Supplier** Mastertronic 8 10 Paul Street London EC2

Battles rage in the North Sea as two companies battle it out over remaining oil reserves One or two player

Program *Five Computer Hits* **Type** Compilation **Price** £6 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

Matrix Hyperforce Mynad Parak and *Cavefighters* are the five of tenders on this line up

Program *Five Star Games* **Type** Compilation **Price** £9 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7Ad

Slightly higher standard of bash with *Manic Miner Lazerzone Leapin Louis Hustler* and *Starburst*

Commodore 64

Program *Conflicts 1* **Type** Strategy **Price** £12 95 (tape) £17 95 (disc) **Supplier** PSS 452 Stoney Stanton Road Coventry CV6 5DG

See Amstrad CPC listing for comment – contains *Battle of Britain Theatre Europe* and *Falklands 82*

Program *Army Moves* **Type** Arcade **Price** £8 95 **Supplier** Imagine Software 6 Central Street Manchester M2 5NS

See Spectrum listing for comment

Program *Dogfight 2187* **Type** Arcade **Price** £9 99 (tape) £12 99 (disc) **Supplier** Starlight Software via Ariolasoft 68 Long Acre Covent Garden London WC2E 9JH

Program *Video Meanies* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Void Runner* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Jeff Minter's weebles away in a kind of Centipede fashion if you feel you have to classify these things

Program *Amaroute* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8 10 Paul Street London EC2

Program *Strike* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Ten pin bowling really is getting popular these days isn't it? This one costs £2 99

Program *UFO* **Type** Arcade **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Polished if somewhat limited shooter from Odin – it well looks pretty anyway

Program *Gunstar* **Type** Arcade **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

Shooty shooty and spot the artistic influence as you rotate through five stages

Program *Zone Ranger* **Type** Arcade **Price** £1 99 **Supplier** Firebird Silver 74 New Oxford Street London WC1

This is 1987 *Zone Ranger* is a pretty flakey *Asteroids* variant originally knocked out by Activision in 1984 The jury can draw its own conclusions m lud

Program *Five Star Games* **Type** Compilation **Price** £9 95 (tape) £14 95 (disc) **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

An impressive array of hits on this one headed up by *Paradroid* with *Cauldron II Dandy Who Dares Wins II* and *Strike Force Cobra* close behind

On the other hand wouldn't you prefer the faster version of *Paradroid* with the improved *Urkdium* from Hewson a double cassette they released just before Christmas?

Electron

Program *Five Computer Hits* **Type** Compilation **Price** £8 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

Fair selection of arcade titles *Croaker Swag Blagger Millionaire* and the immortal *Bug Eyes II*

Program *Five Star Games* **Type** Compilation **Price** £9 95 **Supplier** Beau Jolly 29A Bell Street Reigate Surrey RH2 7AD

Galeforce and *Thrust* had the Popular game droids working overtime – others include *Karate Combat Stockcar* and *Psycastria*

continued on page 61 ▶

Virgin Games *Now Games 4* has got to be a contender for the title of best compilation ever, with a selection of five games .. at least three of which are still worth full price. Cannot be bad, John

Virgin's own *Dan Dare* stars, an arcade adventure with graphics that wouldn't look out of place at the Louvre It's a 'save the earth' job so be careful how you go

***Hacker* was a none too bad yesteryear offering from Activision – although it had not very much at all actually, to do with hacking Still, you control a robot through a system of tunnels that extends around the world, in an attempt to thwart yet another plot at global domination.**

Things are looking pretty bleak in *Mission Omega* too – an object the size of the moon is hurtling towards Earth. The good news is that we are set to destroy it with a mega missile The bad news you've landed on the object and are nosing around Build the robots and explore the complex Solid strategy based entertainment

***Back to the Future* was one of Activision's less successful efforts, but it's still an adequate arcade/puzzle adventure, and the package is rounded up with *Jonah Barrington's Squash*, itself one of a kind on the home computer**

The *Popular* clapometer says that *Now Games 4* is worth getting if three out of five are unique to your collection, but it won't be appearing on next week's programme

◀ continued from page 58

MSX

Program *M Droid* **Type** Arcade **Price** £1 99 **Supplier** Blue Ribbon CDS House Beckett Road Doncaster DN2 4AD

Program *Astro Plumber* **Type** Arcade **Price** £1 99 **Supplier** Blue Ribbon CDS House Beckett Road Doncaster DN2 4AD

What is the call-out charge from Alpha Centuri? Anyway in this one you fly around *Jet Pac* style sealing leaking pipes with your plasma gun That s *Astro Plumbing* for you

Program *Diamond Mine II* **Type** Arcade **Price** £1 99 **Supplier** Blue Ribbon CDS House Beckett Road Doncaster DN2 4AD

Program *Darts* **Type** Arcade **Price** £1 99 **Supplier** Blue Ribbon CDS House Beckett Road Doncaster DN2 4AD

One of four new releases from the CDS budget software label Blue Ribbon all for the MSX

Program *Army Moves* **Type** Arcade **Price** £8 95 **Supplier** Imagine Software 6 Central Street Manchester M2 5NS

See Spectrum listing for comment

Program *Survivors* **Type** Arcade Strategy **Price** £1 99 **Supplier** Atlantis Software 28 Station Road London SE25 5AG

Strategy arcade game with its roots firmly in *Boulderdash* – but with a novel twist

US software company Strategic Simulations Inc has long been recognised as the leader in computerised wargaming with a long line of outstanding product.

Now, in what must be one of the bargains of the year, US Gold has released four classic SSI games in one pack under the apt title of *War Game Greats*

Three of the four are historical World War II scenarios. *Knights of the Desert* puts you in the place of Rommel during the North African campaigns of 1941

Three years later, you command the Allied forces on D-Day in *Battle for Normandy*. And in *Tigers in the Snow*, you can play either the German or the Allied forces during the Battle of the Bulge, the final attempt by the Germans to counter the Allied drive across Europe following D-Day

The trio have much in common All screen displays are based on hex "squares", with suitable colour terrain and clear unit identification There's no hidden movement which is a disappointment, but you do have to deal with supply problems, movement over various types of terrain, and levels of attack and defence from recon/probe to all-out onslaught, and from retreat to counter-attack

The fourth game, *Combat Leader*, is of a different sort Combining strategy with arcade action, it puts you in control of an armoured division comprising tanks, armoured cars, and infantry support (anti-tank gunners, mortar unit, etc)

Control is by joystick and keyboard combined, there's hidden movement in real-time, and a variety of scenarios to keep interest high. The graphics aren't brilliant but are more than adequate

At £12.95 on tape, or £17 95 on disc, *War Game Greats* is unbeatable value

PC and Compatibles

Program *A B C* **Type** Application **Price** £149 + VAT **Supplier** A B C Systems Ltd Regent House 188 High Street Sutton Surrey SM1 1HR

Full accounts package plus wordprocessing database spreadsheet and desk accessories all on one disc Certainly warrants closer inspection

Spectrum Plus 2/128K

Program *The Pawn* **Type** Text only Adventure **Price** £14 95 **Supplier** Rainbird 74 New Oxford Street London WC1

Now underlings can play the game of the 16-bit adventure players although no graphics naturally Don t worry boys they ll get around to the One eventually

Spectrum

Program *Conflicts 1* **Type** Strategy **Price** £12 95 **Supplier** PSS 452 Stoney Stanton Road Coventry CV6 5DG

See Amstrad CPC for comment – but contains *Battle of Britain Theatre Europe* and *Falklands 82*

Program *Army Moves* **Type** Arcade **Price** £7 95 **Supplier** Imagine Software 6 Central Street Manchester M2 5NS

First of a series of games published by Imagine written by Madrid based software house Dinamic It s a horizontal scroller with you controlling a different item of equipment (helicopter jeep etc) in each phase We found the Commodore version almost unplayable but it s acceptable on other formats

Program *Cosmic Shock Absorber* **Type** Arcade **Price** £7 95 **Supplier** Martech Martech House Bay Terrace Pevensey Bay East Sussex

Self-consciously wacky arcade shooter that isn t as bad as you might think

Program *Strike* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

See Commodore 64 listing for comment

Program *Chronos* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Horizontal scroller that won t set the world alight but might just pass away the odd rainy afternoon

CHARTS

Top Twenty

1	(1)	BMX Simulator	Code Masters
2	(9)	Feud	Bulldog
3	(2)	Six Pack	Elite
4	(8)	Football Manager	Addictive
5	(7)	Four Great Games	Microvalue
6	(12)	Konami s Coin-op Hits	Imagine
7	(6)	Gauntlet	US Gold
8	(19)	Olie and Lisa	Firebird
9	(10)	180	Mastertronic
10	(4)	Deeper Dungeons	US Gold
11	(15)	Paperboy	Elite
12	(14)	Ninja	Mastertronic
13	(5)	Enduro Racer	Activision
14	(–)	Curse of Sherwood	Mastertronic
15	(18)	Nemesis	Konami
16	( )	Thrust 2	Firebird
17	(–)	Footballer of the Year	Gremlin Graphics
18	(12)	Hit Pack	Elite
19	(–)	Vampire	Code Masters
20	(–)	Olympic Spectacular	Alternative

All figures compiled by Gallup/Microscope

Puzzle No 255

I dropped my pocket calculator the other day and since then the display has gone haywire. Only the zero is still displayed as a zero. Of the rest, most or perhaps all of the digits are displayed incorrectly. For example, instead of displaying a 1, the calculator displays another digit.

Fortunately, the errors are constant in that a certain digit is always replaced by the same digit whenever it occurs so, provided that you know which digit represents which value, the calculator is still usable.

However, the display can be a bit bizarre as the following two additions will show:

123 + 456 = 789
741 + 852 = 963

The mathematical accuracy is quite correct, it is just the display that is wrong. As a clue, I do know that '7' is even!

Can you find what the above two additions are?

Solution to Puzzle No 250

A = 234 and B = 205. These give values across of 42025 and 54756.

Both A and B are three digit numbers, and to each have five digit squares must be in the range 100 to 316.

Loop A generates all possible values in this range and then the program tests to determine if the digit which interlocks both of these values in the grid is identical. Also the third digit of the square must be a seven as this is already in place in the grid. This is tested for in line 140. Once possible values for A have been found, the second loop tests for value B.

Lines 180 to 200 test the other three points of intersection in the grid and any values which pass this test are printed out.

Winner of Puzzle 250

This week's winner is Dr I S Logan, of Skellingthorpe, Lincoln, who will receive £10.

Rules

The closing date for Puzzle 255 is May 21. Answers should include a program listing if possible.

```
100 FOR A=100 TO 316
110 AS=A*A
120 K$=STR$(A):L$=STR$(AS)
130 IF MID$(K$,3,1)<>MID$(L$,2,1) THEN 230
140 IF MID$(L$,3,1)<>"7" THEN 230
150 FOR B=100 TO 316
160 BS=B*B
170 M$=STR$(B):N$=STR$(BS)
180 IF MID$(L$,4,1)<>MID$(M$,3,1) THEN 220
190 IF MID$(N$,2,1)<>MID$(K$,1,1) THEN 220
200 IF MID$(N$,4,1)<>MID$(M$,1,1) THEN 220
210 PRINT K$;" ";L$;" ";M$;" ";N$
220 NEXT B
230 NEXT A
```


The desktop truth

Everyone is talking about it, and a few are actually doing it. Desktop publishing is becoming ever more accessible, and I published my own booklets at very low cost with the most basic of equipment.

I spent two years working as a magazine editor on a consumer magazine which incurred monthly production costs in excess of £10 000. When the owners of the magazine decided to suspend publication I began to write for magazines on other subjects, but the refusal of my former competitors to carry my articles prompted me to start looking at ways in which I could publish my own work.

I wrote the text for a 32 side (16 page) booklet and set about obtaining quotes for its production. I was in for a shock, since the cheapest quote I obtained was £1 650 for 5 000 copies – far too expensive for my slender means. Smaller print runs pushed the unit costs up from an acceptable 30p to over £1.

At this time I was helping some friends clear out a barn and we came across a Gestetner electric duplicator which was covered in dust and dirt and which had not worked for some years due to a fault which the engineer had proclaimed too expensive to warrant repair. I jumped at the opportunity to buy this machine for £10, and my mechanic friend and I set out to repair it.

Immediately I ran into problems. Firstly, the MPS 801 print-out was too faint for the scanner to function, and three new ribbons brought about no improvement. Eventually I tracked down some special stencils which could be cut and then glued together again, and with a borrowed Taxan dot matrix printer interfaced to my CBM 64 I cut the stencils and did a print run of 500 copies.

Many people would choose a daisywheel printer for stencil cutting. This gives a nice clean print but tends to lose the centres out of o's, b's and so on – giving a rotten result with any letter which has an enclosed area. The dot matrix printer not only leaves the stencil intact, but may also be used for graphics work with the correct software – an area I have still to explore.

Printing costs with my outfit are incredibly low. 1 000 A4 sheets printed both sides will cost in the region of £5, depending on local material costs. My booklet, which comprises 8 A4 sheets (one coloured) costs roughly £35 per thousand, which is a damn sight more satisfactory than the £1650 per 5 000 I was quoted.

Whether you print by offset, stencil, photocopier or computer printer, you are now able to take advantage of specialised publishing software if you have one of the better software supported micros. As ever, the CBM 64 more or less leads the field in this new and exciting software. *The Print Shop*, *Print Master*, *Fleet Street Editor/Publisher* and *Newsroom* programmes all allow a mixture of print and graphics, and Geos looks even more exciting if early reports are anything to go by. QL users can take advantage of *Front Page* which, at just over £20, seems very good value for money. Amstrad and Atari computers also have available software.

For stencil duplicating, any word processing package will take care of text, and graphics may be added by hand by simply putting holes in the stencil with a pointed instrument! This gives an effect which matches the text if a dot matrix is used for stencil cutting, and the results can be quite good.

I've now written the text for three further booklets, to be financed by the proceeds from the sale of the first. The covers will be produced on a colour photocopier to give the booklets a little more class. If funds permit, I shall obtain Geos in order to put illustrations within the booklets.

Jim Tyler

HACKERS



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